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SOME OBSERVATIONS ON THE TREATMENT OF PELLAGRA

J. FRANK WILSON, M.D.
Jacksonville

Until the notable work done by Goldberger and Wheeler in Mississippi and Georgia in 1925, we were completely in the dark as to the etiology of pellagra. They were the first to prove definitely that it was of dietary origin. Before that time and for several years afterward there was a great deal of controversy as to whether the disease was of dietary or infectious origin. There seemed to be some grounds for the belief that it was contagious, or at least infectious, for it apparently occurred in epidemic form, whole families being affected and then later other families contracting the disease upon moving into the same house. We have come to see that the new families lived in the same circumstances as the former ones and probably on the same diets. That there was some cause associated with food had been suspected for many years, but most theories attempted to blame some certain food or contamination, instead of a something lacking in the food. There was one theory that the cause was corn which had become spoiled in some manner and had grown a fungus.

Goldberger and Wheeler had a large number of patients upon whom to work. They spent long periods of time working in the insane asylums where whole buildings, at that time, were devoted to the care and treatment of pellagrins. Some of the patients were kept upon the diet on which they had developed the disease. Other groups had additions of various foods; they gave brewer's yeast to some, liver to others, and to others just a diet rich in proteins, beef, milk, eggs, etc. The patients who were kept on the old diets rapidly declined and died, for these were far advanced cases with mental symptoms sufficient to have them committed to institutions. Those with additions to their diets improved if the proper foods had been added. The conclusion was reached that there was a pellagra preventative factor in several foods of high protein value, the richest sources being brewer's yeast and liver. They simply called this factor pp, stating that it was either a new vitamin which might be named G, or that it was a fraction of vitamin B. The latter has proved to be the case.

Vitamin B is of a very complex nature, not all of its fractions being thoroughly understood. There are the so-called absorbate products, thiamin, or B_1; riboflavin, or B_2; and a filtrate from which recently nicotinic acid has been isolated. Other filtrate factors are more or less vague in their relation to the human body. There is one which is associated with dermatitis in chicks but it has not been established that this is the factor concerned in the dermatitis of pellagra.

Elvehjem[1] discovered that nicotinic acid was a cure for blacktongue in dogs and, as it is thought to be analogous to pellagra in man, he suggested that it be tried clinically. After Spies[2] and others tried it with spectacular results, it has come to be the accepted treatment in a very short time. When this substance is given, the mucous membrane and gastro-intestinal lesions clear up with remarkable rapidity, usually in about forty-eight hours. The sore mouth heals, the diarrhea stops, and there is a general feeling of well-being but when used alone it has little or no effect on the polyneuritis, which is almost always a distressing symptom. It also has very little effect on the dermatitis if it is severe with fissures and secondary infection.

It seems to have been proved clinically by Vilter and Spies[3] that it is necessary to increase the dose of nicotinic acid from time to time in order to maintain a steady improvement. After the patient reaches a certain stage he more or less comes to a standstill or even retrogresses on amounts which were adequate in the beginning. If, instead of increasing the dose, thiamin is given, the same result is noted but after a month or two there is a relapse and it is necessary either to increase the dosage or to add another fraction at this stage.

Read before the Sixty-sixth Annual Meeting of the Florida Medical Association, held at Daytona Beach, May 1, 2 and 3, 1939.

If riboflavin is added, immediate improvement is again noted. It is not understood whether riboflavin acts directly on the pellagra or enhances the action of the nicotinic acid and thiamin. In view of these facts, it is reasonable to suppose that the remainder of the vitamin is necessary to perfect health, as each fraction seems to be more potent when accompanied by another.

It seems to me the logical method of treating pellagra would be to supply the entire vitamin B complex in a preparation which is obtained from natural sources and, in addition, to give the specific fractions which are obviously lacking, nicotinic acid for the gastrointestinal symptoms and thiamin for the neurological symptoms. As one fraction seems to supplement the other, smaller doses would be required to get beneficial results; also the patient will receive the other factors in the complex which, although their function is not known, may aid directly in his recovery or may make the known fractions more potent.

The reason that I say the vitamin B complex should be obtained from natural sources is that, in the first place, that obtained from liver and yeast seems to be the most effective and it has been demonstrated that synthetic vitamins have entirely different reactions from the natural ones, differing from each other radically in accordance with the source from which they are obtained. For instance, there are now ten different forms of vitamin D, some of which are much more toxic than others. In the second place, the complete complex should be given so as to obtain the balance of the filtrate, the chemistry of part of which is unknown.

The diet may not be wholly at fault; the preparation of food is almost as important as the food itself. Part of vitamin B, thiamin and riboflavin, is destroyed by excessive heat and all of the vitamin is soluble and may be drained off in the juices before serving. Nicotinic acid though soluble in hot solutions may remain solid in table form and pass through the intestinal tract unabsorbed if the mucosa is atrophied and hydrochloric acid is lacking from the gastric juice. It is desirable to dissolve the nicotinic acid before giving it and in extreme cases it should be given by hypodermic.

The ordinary dose of nicotinic acid is 100 to 150 mg. a day, usually 50 mg. after each meal. This often gives a transient reaction but this is harmless, aside from a few minutes' discomfort, and is no indication for reduction in the size of the dose. Sebrell and Butler,[4] Spies, and others have shown that very much larger doses may be given without serious results and that the reactions do not occur with any regularity and may cease altogether. The hypodermic dose is usually about 10 mg. but may be increased.

Pellagrins present a social problem for, as a rule, the disease recurs year after year and it is difficult if not impossible to change their mode of living. I have found it to be a waste of time to prescribe a diet unless they are hospitalized or put in someone's care. Their economic condition is such that they cannot obtain the proper food and their mental processes are so slowed either from heredity or from the effects of the pellagra that they cannot properly prepare it. In fact most of them seem to prefer a pellagra-producing diet.

When first seen these patients have usually been taking brewer's yeast, for when pellagra is suspected either in the clinics or by the public health nurses the yeast is immediately prescribed. The State Board of Health for a time furnished free yeast to indigent patients and for that reason we see very seldom well developed pellagra cases. The yeast is so unpalatable and the dose is so large that the amount the patient receives is not enough to prevent the disease entirely but is only sufficient in most cases to mask the symptoms. These patients usually take teaspoonful doses for a week or so and then discontinue it until they relapse. Brewer's yeast alone would probably cure pellagra if taken in half-ounce doses three times a day together with an adequate diet.

It is very probable that we all see cases of vitamin B deficiency without recognizing them. A great many people have peculiar ideas concerning their diet, thinking certain things are bad for them and voluntarily restricting themselves. Others are put on diets for one reason or another,—for example, the low protein, high carbohydrate diet prescribed for cardiorenal diseases requires more vitamin B than would an ordinary diet as vitamin B is essential for the metabolism of sugar. For the same reason vitamin B should be prescribed in diabetes. The entire complex should be prescribed in those ill-defined cases characterized

by anorexia, loss of appetite, nervousness and constipation.

I have had several cases in which nicotinic acid had a remarkable effect on stomatitis. The mouth and intestinal tract were symptom free after one week, but there was very little effect on the dermatitis, although it was somewhat improved. One patient also had a severe polyneuritis; there was tremor of the lips and tongue and she could not protrude the tongue from her mouth. Her feet were so painful that she could hardly walk. The polyneuritis was not in the least improved by the nicotinic acid. The second week 10 mg. of thiamin was given daily and a preparation containing the whole B complex. One week later she was able to protrude her tongue and could walk without much difficulty or pain. The dermatitis healed rapidly and has almost completely disappeared. As I have stated, the dermatitis was already improving and would probably have cleared up, but healed much more rapidly the second week than it had the first. One peculiar thing is that the symptoms subside much more rapidly than the physical signs. The tongue remains red and the atrophy is still very noticeable but subjectively they are symptom free.

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DISCUSSION

Dr. Rothwell Lefholz, Miami:

Doctor Wilson has very nicely summarized the most modern management and treatment of pellagra. Our knowledge of the clinical aspects of this disease is by no means recent, pellagra having been first accurately described by the Spanish physician, Casal, in 1735. Through the years into this century nothing of note was accomplished in the direction of its actual cause and logical treatment.

The literature indicates that the first definite outbreak of pellagra in this country was reported in 1907. It is not denied that it may have prevailed prior to that date to a considerable degree, but without definite recognition. Since 1908, however, it has been repeatedly reported from all the States in the Union, but has always been especially prevalent in the region south of the Potomac and Ohio rivers.

Its treatment had always been quite unsatisfactory until about eight years ago. Almost innumerable foods and drugs were known to afford clinical improvement, but a recurrence was to be expected. With the isolation of the vitamin B complex and nicotinic acid, the satisfactory experimental results and the, thus far, apparently satisfactory clinical reports from medical centers where the disease is particularly prevalent, we seem to be on the verge of another revolutionary change, as far as this disease is concerned. As recently as 1931, the literature stated that the cause of the disease was unknown and the mortality rate ranged from 30 to 60 per cent.

Prior to the era of treatment outlined by the author, the disease could not be properly handled outside a well organized hospital and, at best, the course of treatment in those who survived often extended over a period of weeks or months. Now the results indicate that in a majority of cases the patient may make almost miraculous improvement in a few days, thereby reducing his hospital stay, and the mortality rate has dropped to between 5 to 10 per cent. However, I don't think the question of recurrence is settled yet.

Should our newer concepts prove, by pharmacological refinements and education of the public, to be as well grounded as the results to date indicate, and if pharmaceutical houses will refrain from exploiting preparations of undetermined potency and if they will reduce their prices to within the means of the human strata so affected, I dare say that pellagra bids soon to hold a rank with the diseases of lowest incidence in the United States.

Dr. G. C. Bottari, Tampa:

The treatment of pellagra is a rather large subject to cover in such a short time, and I think Doctor Wilson has done it masterfully in his timely, precise and practical paper.

Casal, a Spanish physician, in 1735 first described this new disease called Mal de La Rosa or Rose sickness. Frapolli, an Italian physician, in 1771 named it pellagra from pellis (skin) and agria (affection). Pellagra, known as South's hard times disease because it follows slumps in the cotton market and other economic disasters in Dixie, comes in the orbit of the Welfare Agencies as much as in the interest of the internist, the dermatologist and neurologist. We have to consider it as a multiple deficiency disease in analyzing the facts that the peripheral neuritis responds only to vitamin B_1, and that the pellagrous dermatitis and the general well being of the patients to the nicotinic acid and well balanced diet.

In treatment of genuine pellagra we have to consider the nicotic acid diet deficiency, but we should not overlook the lack of absorption due to intestinal parasites, especially ankylostoma duodenale. This explains why some members of a family sharing the same food are victims of pellagra, while others are not. This is really not a disease of the poor because the rich also are subject to the evils of this intestinal parasite.

The value of nicotinic acid is less effective in pellagra as seen in the North where the disease is often the result of alcoholism, than in true endemic pellagra of the South.

The brilliant response of pellagra to nicotinic acid and derivants is an excellent therapeutic test to show the presence of this infirmity, and a good many cases classified as toxic psychosis and schizophrenia could be ruled out.

Nicotinic acid is a constituent of food, and anti-pellagra foods as yeast, wheat germ and liver are rich in nicotinic acid; corn meal, molasses, fat meats, etc., contain little of it, if any.

Nicotinic acid has been given also in radiation sickness, from 200 to 1000 mg. a day in fractional doses, and has proved miraculous in prompt cessation of nausea, vomiting, anorexia and headache. Doctor Spies of Cincinnati and Doctor Stone of Birmingham report good results in groups of patients with chronic con-

stipation without pellagra and in which there was a striking return of the bowels to normal.

Coramine is another substance used in the treatment of pellagrins and the effects are about the same as those of nicotinic acid, the cardinal symptoms of active pellagra, i. e., glossitis, anorexia, symmetric dermatitis, diarrhea and dementia, subside promptly.

Doctors Ruffin and David Smith report in a series of cases that dermatitis and sebaceous gland changes are more resistant to treatment of nicotinic acid than to liver extract.

A word of caution should not be overlooked about the use of this agent, especially considering the large doses used (Gm. 1, 5). The toxicity of the product has not been brought out, and the flushing of the face and neck almost immediately after administration, nausea, vomiting and severe nervous disturbances, are warnings to the clinicians. The circulatory effects, nausea, vomiting and other symptoms, seem to demonstrate that nicotinic acid shares the same effect and dangers of nicotine from which it may be removed.

Another clinical point to illustrate is: when will we consider the patient well? Is it when the improvement of the patient's well-being is associated with subsidence of dermatitis, glossitis, anorexia, diarrhea and mental symptoms without relapse after exposure to sunshine? Harris of London, Mack of New York, Spies and Ruffin are not of the same opinion. When we look at the violently demented pellagrins restored to sanity within from one to six treatments with nicotinic acid; when we contemplate the magic effects on the symmetric, typical dermatitis and other alarming symptoms, we cannot hesitate to further study the effect of this wonderful drug.

Sulfanilamide was the most important drug introduced in the medical practice in 1937. The palm for 1938 must go to nicotinic acid for treatment of pellagra.

Dr. L. L. Whiddon, Ft. Pierce:

This subject of pellagra has been a pet of mine for about twenty-five years. I have read papers in Georgia and Florida several times on this subject.

Although pellagra has been reported for many years we must say that it is a disease of civilization. If it is a disease of civilization, let us talk about the things that civilization is doing that are causing pellagra. Civilization is trying to do three things: trying to please the ear, eyes and taste. Let us see how we are making mistakes along that line. God, in His omnipotent preparation of man made three requirements of the human body: (1) we, being warm-blooded animals, that warmth must be kept up; (2) put up reserve flesh for a fasting period and (3), replace lost energy.

God did not forget in making these three requirements to supply each requirement with a definite food. The food for keeping the body warm is carbohydrates. I expect criticism on this because I have stood up before the State Association once before and said that I was at the point where I was willing to refute science in saying that carbohydrates were our energy food. They are not! Carbohydrates supply heat to the body only. We have been told in physiology that the heat was the strength or energy of the body. Science does not say it is, but it says that we presume it is. I can presume as well as any one. They have confused heat in the body with heat in an engine. Heat in an engine is energy after it is confined, but you could build a fire all over the engine; if you did not confine the heat, there would be no energy. Heat in the body is not confined; therefore, it is not energy. If carbohydrates are to keep the body warm, we certainly don't need them much in this climate.

Not only did God give us a food for each requirement but He did not forget to give us a digestive juice for each food, excreted by three separate digestive organs. Fats in combination with carbohydrates are to put up reserve nourishment for the fasting period. When first put on earth man did not have breakfast, dinner and supper. He probably had one meal a week or in two weeks,—only when he could catch it. Then he needed to build up reserve nourishment so fats in combination with carbohydrates did that then. Do we need them now? We have breakfast, dinner, supper. We have no fasting period; therefore, we don't need to put up much reserve flesh now.

Then He gave us protein for our energy food, for our third and most important requirement. The fact is that every minute of our lives, every time we blink an eye, every time we think, every time we move, every time our heart beats, and every time we breathe we are losing energy. This must be replaced by proteins. Now we are going to the extreme in eating carbohydrates; that is civilization's grand mistake which is causing pellagra. We have grown fat on carbohydrates and starving for proteins. Let us quit eating carbohydrates and eat more ham, meat and liver,—and we will not have to use nicotinic acid.

Nicotinic acid is wonderful for an initial symptomatic recovery but you must correct your patient's diet if you are to have a lasting cure.

Dr. J. Frank Wilson (Concluding):

I wish to thank the gentlemen for their comments on this paper.

I agree with Doctor Whiddon on the importance of a proper diet. However, there are people who cannot procure it. The majority of cases seen are on relief and usually get food tickets of about $2.25 a week per person and this amount will not pay for enough food of high protein value. My paper is primarily concerned with the treatment of patients who have already developed pellagra and is not concerned with its prevention.

THE THYROID AND ADRENAL GLANDS AS FACTORS IN THE CONTROL OF FEVER

HEAT REGULATION AND CLIMATE

N. L. SPENGLER, M. D.
Tampa

The adrenals of all mammals which have been investigated so far, present at birth the complete apparatus of the fully developed adult adrenal. This is not so in the human adrenal. It is at birth a large organ with a smooth regular surface. The medulla is small and contains practically no adrenalin at birth; however, the embryonic gland from the eighteenth week onward contains considerable amounts of adrenalin but not before that date. It is interesting to note that a definite use in heat production beginning in the second week of life, may be related to the process of involution of the adrenal gland.

A process of this kind offers ample opportunities for abnormalities to occur. It has been noted in a cretin that the formation of the medulla of the adrenal is inhibited although the connective tissue formation has commenced. The suprarenal of a brainless child

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Read before the Sixty-sixth Annual Meeting of the Florida Medical Association, held at Daytona Beach, May 1, 2 and 3, 1939.

develops in the same manner as that of animals. In the adrenal of infants dying in the first three months after birth with the symptoms of marasmus, an imperfect development of the medulla was found. The material studied is not sufficiently large to draw definite conclusions. It is sufficient to suggest, however, that the pathology of the human adrenal during the first few months of life offers a wide field of study which is likely to yield interesting results.

The above facts have been borne out clinically by me in the administration of thyroid gland and adrenal gland substances in some of the otherwise unexplainable abnormalities found in the first ten months of life.

Much importance must necessarily be attached to the sudden change in the thermal environment occurring at birth. This change in environment is probably responsible for initiating this involutionary process by inducing the intense hyperemia which excites the connective tissue reaction in the adrenal caused by hemorrhage into the adrenal. If the above conclusions are correct, it seems possible that the process may take an abnormal course if the stimulation by the thermal environment is either excessive or inadequate, that is to say, if the infant is kept too warm or too cold.

There is also the possibility that dietetic errors may be responsible for abnormalities in the process. Several observers have shown that both vitamin B deficiency and chronic starvation produce changes in the adrenals of animals and children suffering from marasmus. It is not unreasonable to suppose that such factors, if operative during the first weeks of life of an infant, would interfere with the normal course of the process above described, which is peculiar to the human race. An excessive connective tissue reaction or an imperfect transformation of the cells destined to form the medulla, may cause some of the obscure diseases of infancy which are classed together under the term "marasmus" and which are not obviously due to dietetic errors. I have used insulin in this class of cases, but not with very satisfactory results. I have used thyroid with good results and since I have added adrenalin, I am sure that I have had better results.

With the exception of respiration, all the factors concerned in the heat regulation of warm blooded animals are under the direct control of the sympathetic nervous system and, therefore, subject to control by the functional activity of the thyroid and adrenal glands. Increased functional activity of these glands has the effect of stimulating the sympathetic. There is, therefore, both a nervous and humeral apparatus for heat regulation. Stimulation of the sympathetic increases metabolism and, thereby, increases heat production. While it diminishes heat loss through constriction of cutaneous blood vessels, it increases heat loss through stimulation of the sweat glands. This latter effect may be inhibited by constriction of the cutaneous blood vessels. In furry animals which cannot regulate heat loss by sweating, this function is taken over by the arrectores pilorum. It follows, therefore, that stimulation of the sympathetic, by increasing heat production and by preventing a compensating increase in the heat loss or actually diminishing it, produces a type of fever known as "sympathetic fever." Such a fever can be induced by increased functional activity of the thyroid and adrenal glands, even without the presence of bacteria.

Evidence is adduced that in many of the fevers due to bacterial infections, there is an increased functional activity of these glands. In fever, there is a change in body temperature or, as it may be called, the internal thermal environment, due to the stimulation of the thyroid and adrenal glands. Conversely, the functional activity of these glands can be brought to play by changing the external thermal environment. Exposure to cold which calls for increased heat production and diminished heat loss, stimulates these glands to increased activity. Exposure to heat diminishes their activity. The thyroid and adrenal glands represent, therefore, a humeral apparatus for the heat regulation of the body. This accounts for the physiological effects of climate. A bracing climate is one which stimulates the sympathetic and the thyroid and adrenal glands; a relaxing climate is one which fails to stimulate them. The work of Leonard Hill and Argyle Campbell has shown that one of the effects of a bracing climatic environment, such as open air treatment, is a rise in metabolism, but this does not account for the beneficial effects of such an environment. The explanation is found in the increased functional activity of the thyroid-

adrenal apparatus of which the rise in metabolism is one manifestation.

The above conception of heat regulation enables us to dispense with the idea of a heat center which has dominated physiological and pathological thought for such a long time. Since heat regulation is a function of the sympathetic, the so-called heat center is in the cells representing the central connections of the sympathetic.

Of even greater general significance is the fact that changes in the external thermal environment affect the activity and structure of organs like the thyroid and adrenal glands which have such a profound influence on the physical and mental make-up of the organism.

The process which takes place at birth in the human adrenal is at present an unsolved problem. So far as is known at present it is without analogy in all the other mammals in which the development of the adrenal has been studied. Man differs from all other mammals in the fact that his heat regulation mechanism is so imperfectly developed that he can only maintain his body temperature by the aid of clothing and artificial heating, except in tropical climates. Civilized man behaves, so far as his heat regulation is concerned, like an animal kept at an outside temperature of 33 C. Under such conditions the chemical heat regulation is practically eliminated and only the physical heat regulation remains effective, which controls the heat loss. For this work the activity of the sweat glands is of such importance in that their failure to work in a warm environment induces heat stroke. Every attack of heat stroke is ushered in by a failure to sweat, and this prodromal symptom occurs many hours before the rise of temperature begins, so that it is impossible to avert successfully every case of heat stroke by instituting treatment with wet blankets whenever failure to sweat makes its appearance.

There are animals that do not possess sweat glands except in certain restricted sites, such as the pads of the feet, and they cannot, therefore, increase their heat loss by perspiration. To this group belong the animals with a thick fur. This represents a difference of greater significance than is generally recognized. While man and those animals possessing a wide distribution of sweat glands are capable of withstanding temperatures greatly exceeding those of the body, animals without sweat glands are not able to do so. Rats and mice die in a still atmosphere of 34 C. and the postmortem findings are similar to heat stroke in man (deep engorgement of the lungs).

Man without heat and clothing would be unable to live in any but a tropical climate, partly because his hairless skin gives him little assistance in preventing heat loss, and partly because his chemical heat regulation is less effective. The evolution of man, therefore, could have taken place only in a tropical climate. Sir Arthur has illustrated clearly the importance of two endocrine organs in the process of evolution. Man by the use of clothing and heat has made himself master of all climates, but climate affects him mentally and physically to a much greater extent than is generally supposed. Ellsworth Huntington has studied the effects of changes in weather on man, and has established definite variations. Both mental and physical activity reaches pronounced maxima in the midsummer and midwinter. Changes in temperature, provided they are not too great, are more stimulating than uniform temperature. In the temperate climates, a fall in temperature is more stimulating than a rise and people are not so efficient on fine days with a clear sky as on a cloudy day and after a storm. The greatest efficiency in physical and mental activity is found with a mean temperature lying between 50 and 60 F., and it falls rapidly as the mean temperature rises above 65 F. On the American continent such a climate is found in a broad belt running parallel with the Canadian border and comprising Southern Canada and the eastern and central states and also a narrow stretch on the Pacific Coast from British Columbia to California.

Huntington also claims that the shifting of climate is the cause of shifting of centers of civilization except in regions where the climatic stimulus is great. The observations on the thyroid adrenal apparatus supplies an interesting relationship between climate and civilization. It is interesting to know that a change from a warm to a cool environment was found to be a greater stimulus to the adrenal gland than continually cool environment. The fact that the activity of the thyroid and adrenal glands are subject to climatic conditions enables us to understand the effects of climate on man. For man, at any rate, these glands are not merely regulators of

metabolism, of heat production and heat loss. Their functional state affects his physical activities and colors his mentality. We need only to think of the degradation of intelligence which accompanies the earliest onset of myxedema, and the restoration to normal mentality through the administration of the thyroid gland. These pathological conditions form a counterpart to the depressing effect of a warm moist climate with little change from day to day, because it fails to stimulate the thyroid-adrenal apparatus and through it the sympathetic.

Conversely, the cool, variable climate, which we have learned to associate with the fullest development of human activities, provides a continued stimulus to the endocrine organs and the sympathetic.

The same explanation applies to the relation between climate and health. Why is the resistance against certain bacterial infections, such as tuberculosis, increased by a suitable cool, dry climate, and by measures such as open air treatment, hydrotherapy, and the like? Hitherto, we have been told that these conditions increase metabolism. The beneficial effects of metabolism can be increased by other measures such as vigorous muscular exercise but then it is likely to be harmful. The answer is that those measures are beneficial that stimulate the thyroid-adrenal apparatus without exhausting it, and this strengthens what we have seen as one of the normal reactions of defense of the organism against many bacterial infections. A warm, moist, monotonous climate weakens resistance against infections not because it reduces metabolism but on account of the continual absence of a stimulus to the thyroid adrenal apparatus and the sympathetic. During the influenza epidemic of 1918 the severity of the disease varied greatly from place to place in the United States. On comparing the deaths from influenza and pneumonia with various environmental factors it was found that the severity of the disease depended on the weather more than upon any other known factor. *(Nat. Research Council of the U. S.)* The epidemic was more severe in the warm parts of the United States and those cities in the cooler parts which happened to be especially warm before and during the epidemic. Where people were weakened by hot, damp weather, the influenza became virulent; it spread with great rapidity and it entailed a huge death toll.

The depressing effects of inefficient ventilation, which the work of Leonard Hill has shown to be due to a lack of cooling power and not, as was at one time supposed, to be an excess of CO_2 in the air or to other toxic substances, are similarly due to this lack of a stimulus to the thyroid-adrenal apparatus. Conversely, we have the intensely depressing effect resulting from exposure to cold with insufficient clothing and inadequate heating.

At the other extreme is the effect of a tropical climate on man. This has frequently been attributed to a progressive decrease in the basal metabolism. A European's metabolism in a tropical climate is no lower than that of the same European in the cooler climate of his native country. Nor is there marked difference between the basal metabolism of a European and a native who is better able to withstand the climate than the European. There must, therefore, be some factor, in addition to the lack of stimulus, which makes the European less fitted to adapt himself to a tropical climate. As long as the thermal environment provides an efficient stimulus to the thyroid and adrenal glands, they are not only actively secreting their specific hormones but are as actively forming them. When thermal environment is absent, the formation and secretion are inhibited to the extent that the medulla of the adrenal does cease to contain adrenalin. There is a possibility that an abnormal accumulation in the blood stream of thyroxin and adrenalin may produce pathological results. There is a close relationship between adrenalin and pigment and this is seen in disease of the medulla or in Addison's disease when formation of adrenalin is impaired and pigment is deposited in the skin. The pigmentation of the races living in tropical climates may be the method by which the organism disposes of the material which would otherwise be used for the formation of adrenalin. In the white race this method of excretion of the excess of adrenalin is not so well developed and this may be one of the reasons why the white race is less fitted for a tropical climate.

"It is safe to say that there is hardly a single bodily function that is not directly or indirectly influenced by these glands. They are

concerned with differentiation of tissue, with nutrition and growth, with sexual activity and with mental development. In brief, they are bound up with all development, physical as well as mental."

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903 Tampa Theatre Building.

DISCUSSION

Dr. J. R. Boulware, Jr., Lakeland:

The essayist is to be congratulated on bringing to us this very interesting and instructive paper. As I looked back over my text books on the physiology of heat, I found the old concept of a heat center in the brain was taught, but never definitely proved. Doctor Spengler has shown us that a more rational explanation is found in the thyroid-adrenal sympathetic system.

He has brought out the inter-relationship of the external temperature and the thyroid-adrenal sympathetic control of the many important body functions.

But some of the statements made are still slightly controversial. Talbot, in 1936, quotes the work of Martin who found that on a trip to Australia his own metabolism fell 12 per cent on entering a hot climate and raised again to normal on reaching cool trade winds. Also, Mason found similar effect in metabolism of European women in temperate climate and in India. Thus we find that geographic and climatic conditions do affect metabolism. This would seem to indicate that there is an effect of climate on the thyroid-adrenal sympathetic system.

There is no definite agreement among the writers on the involution of the adrenal gland. Some contend that this involution is complete in three months and others in one to two years. The fact remains that it is fraught with potential abnormalities; that many things such as abnormal heat and cold, vitamin B deficiency, etc., as described by Dr. Spengler, may affect this gland and give us many acute problems of obscure nature found in many children under one year of age.

I would like to ask Doctor Spengler if he would tell something of how he administers adrenalin in some of the cases referred to, whether by hypodermic several times a day, and the results obtained.

Dr. Frank S. Adamo, Tampa:

The more I listen to studies of the endocrine, the more complicated the subject becomes. Of course we know that there are certain sympathetic fevers in which we do all the tests known to find the cause of the fever and we find nothing to which we can attribute such fevers.

I still think perhaps that there is a center for heat in the brain. And I think that all of the sympathetic system is very closely connected with the central nervous system.

Dr. Max Peet of Ann Arbor reported a case with temperature in which they did a postmortem and found a tumor of the hypothalamus. Of course it is true that we have certain cases that go on to autopsy in which we find no pathology to explain such deaths.

I think the suprarenal glands must have a great deal to do with the thyroid and the brain. Doctor Crile and his assistants carried on phylogenetic studies with reference to the adrenals and thyroids of lions and human beings. They found that in the lions the adrenals are twice the size of the thyroids, while in the human being, the opposite is true. Perhaps it is due to the fact that the lion requires great strength in his struggle for existence. In man, in which the intellect undoubtedly attains the highest pinnacle, the thyroid becomes larger. The living organism and even tissue has a great range of adaptability, and so it is possible that the anatomical changes in these glands cause changes in physiology rather than the latter causing changes in the glands.

As I say, I enjoyed the paper very much and I hope that more studies will be made on these cases so that we may learn more about the endocrine system.

Dr. Nathaniel L. Spengler (Concluding):

The object to be attained by endocrine therapy in endocrine dyscrasias is to bring about a balanced hormone output from all the endocrine glands. It is better never to speak of a condition as being one of hyposecretion or hypersecretion of some particular gland because it creates the idea of substitution therapy or reduction therapy and the picture of what has taken place or will take place in the hormone output of therapy is lost.

The endocrine glands must maintain a proper balance if we are to live lasting and normal lives. Of course you may have hypofunction of any endocrine gland or you may have a congenital deficiency of a developmental nature, or a trauma, or a diseased gland, all of which would give similar symptoms. This can only be explained by the time in life it presents itself, its onset, the body's variation from normal anthropometry, mentality and behavior characteristics, and certain laboratory findings which must be valued with reservations. There is not a single diseased condition of the body that does not have its endocrine aspects, because they are bound up in all physical and mental activities. Long drawn-out convalescent periods from operative and diseased conditions are often the result of failure of the endocrines to regain proper balance. Cell sensitivity, receptivity and utilization are essential to proper nutrition. Without these essentials, inanition gradually results and we say too much loss has occurred and the patient must die. This condition is often due to endocrine imbalance or anabolic failure. If the catabolic side fails, we have rapid or gradual increase in size, which results in various types of dystrophies. I have seen the very thin and very large individuals return to normal proportions under the same endocrine therapy, proving that endocrine balance can be produced and maintained only by a proper relationship which is dependent on normal function of all glands.

The best approach is by, first, stimulation of the activity of all the body cells and, of course, this includes the endocrines. Next note carefully all things that influence the endocrines and, when satisfied that all have reached their maximum efficiency, then you are in position to begin substitution therapy to correct remaining dystrophies. This requires time and patience both on the part of the physician and patient. I am an exponent of uniglandular therapy, first in the form of stimulating hormone, then making substitutions of various uniglandular products, discontinuing, increasing or decreasing their intake at various levels with the object always in view of reaching and maintaining a normal hormonal utilization by the body which will maintain a normal functioning human being.

My object in presenting this paper is to show the important part that endocrine dyscrasias play in all things medical and to create within the minds of medical men the importance of studying all patients from an endocrine point of view. For years I have recognized this fact and I am thoroughly convinced of its importance in pediatrics and in adults. It is in early life we must recognize and treat endocrinopathies if we want the best results. I am convinced that endocrinology is a most important part of the field of the pediatrician, because most of our childhood problems are endocrine, and the same can be said of adults.

References: I have tried to give credit where it is due but there are so many repetitions and duplications and the literature is so voluminous that it is impossible. However, I do wish to give full credit to Cramer of Edinburgh and the Imperial Cancer Research Fund.

MYOCARDIAL INFARCTION

ELECTROCARDIOGRAPHIC CHANGES AND NECROPSY FINDINGS

Jere W. Annis, M. D.
Lakeland

The history of coronary occlusion with resultant myocardial infarction is one which is most familiar. It is because of its frequency as well as the rapid strides made in its diagnosis that I have elected to review briefly the electrocardiographic changes in this disease and, more specifically, in three recent cases in which necropsy was performed.

Incidentally, in connection with the first case, it is well to recognize the importance of embolism as a complication of cardiac infarction. Blumer[1] has shown that intracardiac thrombi are present in 50 per cent of cases, with clinically recognizable embolic phenomena in 14 per cent.

Case I: A female, aged 70 years, was admitted to the hospital May 3, 1938, with a history of recurrent attacks of gaseous indigestion for several years. During the past two days nausea and vomiting had become severe and the patient was unable to retain any appreciable amount of food. This was accompanied by a severe burning sensation in the substernal region. Hospitalization was precipitated by a severe attack of precordial and substernal pain with radiation to both arms and accompanied by nausea and vomiting. There was a definite preceding history of pain on effort or exertion. The patient's past history was essentially negative except for malaria and typhoid fever many years previously.

Physical examination revealed a well-nourished, white female, apprehensive and in severe pain. Eyes essentially negative except for retinal sclerosis, grade II plus, on fundoscopy. Nose and throat negative except for tonsillar sepsis, grade I. Thyroid negative. On percussion, the left border of the heart was just inside the nipple line and there was no evidence of enlargement to the right of the sternum. There was perceptible widening of the area of dulness over the aortic region. Rhythm was totally irregular; apical rate 168, radial pulse 116. No definite murmur heard but the rapid, irregular apical rate made auscultation difficult. Blood pressure: 140/92. Examination of lung fields revealed only a few moist rales and slightly increased pitch in breath sounds over the left base posteriorly. On abdominal examination, the liver edge was palpated 2 fingers' breadth below the costal margin; abdomen otherwise negative. Extremities showed no evidence of edema but peripheral sclerosis, grade II plus.

The patient was kept at absolute bed rest with morphine in sufficient amounts to insure good relaxation. Convalescence was uneventful at first but later, on the 15th day after admission, she underwent another sudden, severe attack of precordial pain and died shortly thereafter.

At autopsy, the heart showed beginning adhesive pericarditis over the anterior surface with an area of softening and old infarction about 3 x 4 cm. in the anterior apical region of the left ventricle. There was a smaller area which appeared very slightly softened and discolored higher up on the anterior wall. On opening the heart, the area of infarction in the left ventricle was seen to be situated in its anterior apical portion but involved chiefly the interventricular septum. There was a large mural thrombus, 3 x 3 x 4 cm., lodged in the infarcted area with a thinning and beginning aneurysmal dilatation of the wall. The right coronary artery showed sclerosis and narrowing of the lumen, grade III, in spots, but was open throughout. In the anterior descending branch of the left coronary artery, about 5 cm. from its origin, there was complete occlusion of the lumen by an old organized thrombus. (Fig. 1).

Before going on to the electrocardiograms in this case, let us look back momentarily over the subject we are about to discuss. There are several anatomical and pathological facts to be recalled:

1. The anterior descending branch of the left coronary artery supplies the anterior apical part of the left ventricle and the interventricular septum;

2. The circumflex branch of the left coronary artery supplies the left half of the posterior portion of the basal three-fifths of the left ventricle; and

3. The terminal portion of the right coronary supplies the posterior part of the interventricular septum and the posterior basal portion of the left ventricle.

Pathologically, we are dealing with an ischemia of the cardiac muscle, usually from a thrombosis in one of these vessels, with the frequent development of mural thrombi and localized pericarditis. Acute infarction is practically entirely limited to the left ventricle either in its anterior apical or posterior basal portions and to the interventricular septum. Exhaustive reviews of the subject by Barnes,[2] Wolferth,[3] and Wilson[4, 5, 6] have established that it is the infarcted area rather than the occluded vessel which produces the characteristic electrocardiographic changes. This is further emphasized by Katz[7] who says that the "electrocardiogram is a record of events in favored rather than in all regions of the heart. Currents due to injury and affecting these favored regions are revealed, but those in other areas may be missed."

The use of the electrocardiogram as a diagnostic measure is still empirical—yet its aid is often invaluable, especially since the strict confinement of the patient with proved myocardial infarction is not to be lightly imposed upon one in whom the diagnosis is in doubt.

Likewise, the localization of the infarction may be said to be an academic question, yet it is the accumulation of large amounts of this

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Fig. 1. CASE I. Left ventricle showing large mural thrombus in situ.

carefully collected "academic" data which may, with our ever-increasing knowledge of the subject, eventually add greatly to the accurate prognosis and more successful treatment of this condition. It is for these reasons that we must utilize every available adjunct in the accurate diagnosis of one of the most common causes of death today.

Herrick[8] in 1919 and Pardee[9] in 1920 first described the electrocardiogram of acute coronary occlusion, the latter attempting to localize the infarct. Barnes and Whitten[10], and Parkinson and Bedford[11] enlarged and amplified these characteristic changes in the standard leads until there are now established two definite types of electrocardiographic pat-

terns, the one associated with anterior apical infarctions and the other with posterior basal ones.

Summarizing and tabulating these changes in typical cases, we find first the Q1-T1 tracing seen with infarction of the anterior apical portion of the left ventricle in which we see:

1. A prominent broad Q wave in Lead I which may be the sole deflection of the Q-R-S group and is always followed by a low R summit. The Q is absent in Lead III.
2. A deep S wave in Lead III.
3. An elevated rounded "cove plane" RS-T segment in Lead I with a reciprocal depression in Lead III. There is a high take-off of this S-T segment from the Q-R-S complex in Lead I.
4. Finally, the development of a sharply inverted and pointed T wave in Lead I with a sharp upright T 3. Lead II usually follows the characteristics of Lead III but may resemble Lead I.

In the Q 3 T 3 pattern of posterior basal infarction there is an exactly reversed situation:

1. Marked Q deflections in Leads II and III, often large and W-shaped.
2. An elevated rounded RS-T segment in Leads II and III with a depression in Lead I.
3. A sharply inverted V-shaped T 3.

Any or all of these changes may be present in cases of myocardial infarction. Wilson[12] and others have pointed out that while variations in the individual waves of the initial and final ventricular complexes may be seen in conditions other than myocardial infarction, the complete picture when present is diagnostic. In this regard, it is well to emphasize the observation of Akesson[13] that Q 3 waves and inverted T 3 waves may occur in normal subjects. For this reason progressive changes in a series of electrocardiograms are vastly more useful than any one single tracing.

Accuracy of Localization: In the vast majority of cases, necropsy shows anterior apical infarct with Q 1 T 1 type of electrocardiogram and posterior basal lesion with Q 3 T 3 types. Exceptions apparently occur, but most cases in literature are not convincing. There can be no doubt that there are not infrequent instances of infarction in which the three standard leads are normal or nearly so and in which the fourth or precordial leads will furnish an unequivocal diagnosis. However, it is my belief that these cases are less common than is generally supposed and that more careful perusal of the standard leads would be rewarded with a higher percentage of positive findings. This is certainly true of those cases in the literature, many of which, though purportedly negative, show rather characteristically typical changes. In this respect the attention which Barnes[2] and others have called to the upwardly rounded S-T segment is of the utmost significance.

Frequently, multiple infarcts complicate the picture and lead to erroneous diagnoses. Illustrative of this point is my next case.

Case II: A diabetic woman, 67 years old, had hypertensive and coronary disease of obviously long standing. While in the hospital for amputation of a gangrenous extremity, she had a severe attack of prolonged substernal pain, nausea and vomiting. Electrocardiograms 12 hours later showed a rather typical picture of a posterior basal infarction. Death occurred 3 hours later and at autopsy, a large, recent, anterior apical infarct and an old, healed, posterior basal one were found. (Fig. 2). Unfortunately, this was on the first day of hospitalization and an electrocardiogram had not been taken before the attack, but the chief changes were obviously due to the old rather than the recent infarct.

A third case serves to emphasize the value of progressive changes as observed in serial tracings.

Case III: This patient was an 80 year old female with pernicious anemia who had typical symptoms of coronary occlusion while in bed in the hospital. Tracings were made daily for 8 to 10 days. At first, definite evidence could not be established, but the progressive changes eventually indicated a posterior basal type of occlusion, a fact which was later proved at autopsy. (Fig. 3).

FOURTH OR PRECORDIAL LEADS

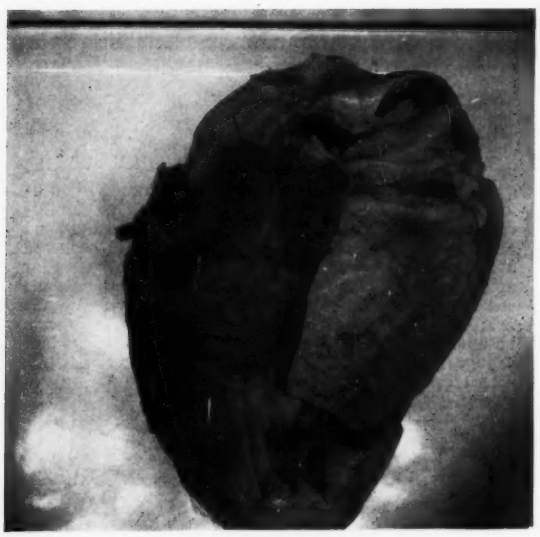
In an effort to obtain more exact localizing evidence of infarcts, numerous experiments have been made in the past several years with leads taken from the precordium. Wolferth and Wood[14] in 1932 were the first to point out that these leads may show the typical Q R S-RS-T and T wave changes in coronary thrombosis when the standard leads are equivocal. Since then there have been countless variations and innovations in the manner of taking these leads and it is only recently that a special committee[15] has attempted standardization and simplification of them. Leads may be taken from five or more points across the chest wall and while information from a single precordial lead is sometimes misleading, it is recommended that if, to save time, one only is taken, it be taken with the precordial elec-

trode over the apex. It is also recommended that the galvanometer connections be such that an upward deflection in finished curve be indicative of a relative positivity of the exploring electrode, thus keeping the normal configurations in accord with the standard leads.

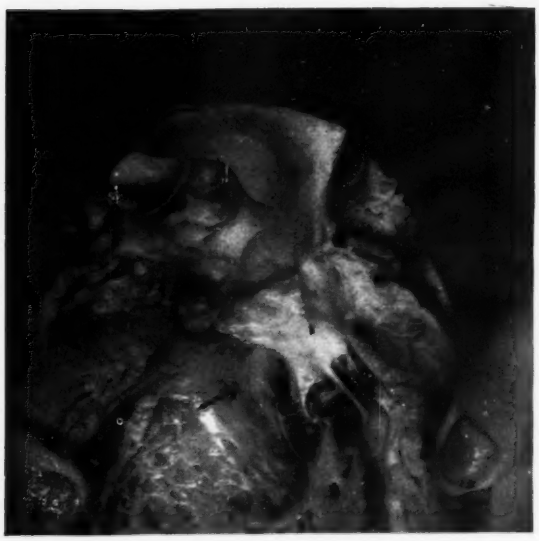
Briefly, the signs of infarction in the precordial leads are the same as those in the conventional leads; that is, in anterior apical infarction:

1. In early stages, pronounced positive displacement of RS-T junction and RS-T segment.

2. As RS-T displacement declines, a large, initial deflection Q and a large, pointed, negative T wave develop.

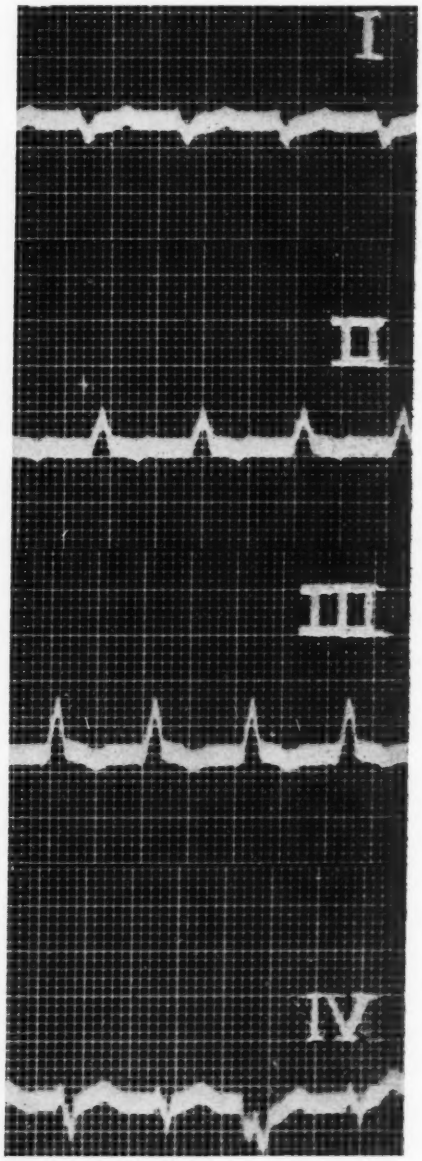


(a) Large recent anterior apical infarction.



(b) Small area of ancient posterior basal infarction.

Fig. 2. CASE II.



(c) Electrocardiogram showing right ventricular preponderance, low voltage, depressed S-T segment Lead 1 with an elevation in Leads 2 and 3. There is a tendency to an exaggerated T 4 (Lead 4 is the Lead 4 F of the Committee for Standardization of Precordial Leads (15) unless otherwise specified.

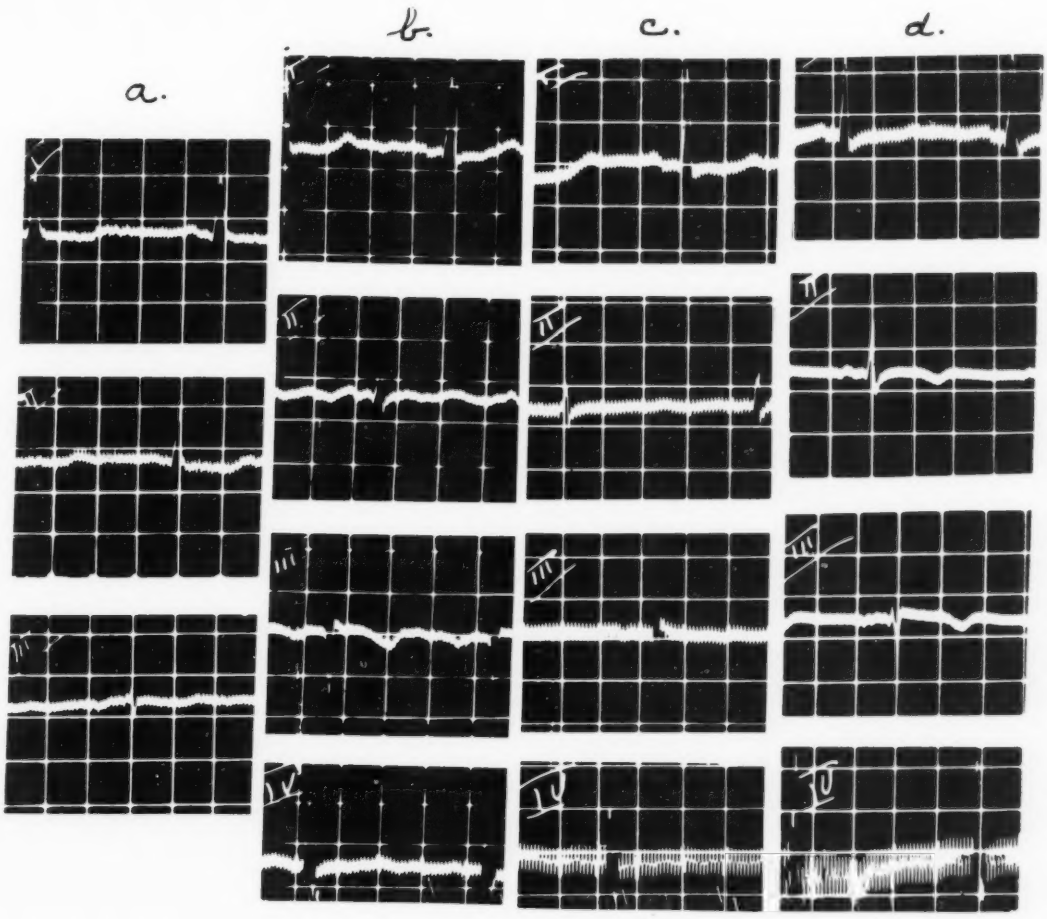


Fig. 3. Tracings in Case III.

(a) Two weeks before occlusion showing isoelectric T 3, diphasic T 1 and T 2, left ventricular preponderance.
(b) Twelve hours after supposed occlusion. There is an isoelectric T 2, an inverted T 3 with a rounded RS-T segment, indefinite T 4.
(c) Forty-eight hours later. Similar to (b) but T 4 is more prominent and is upright. (This 4th lead is a Wolferth lead).
(d) Forty-eight hours later. Inverted T 2 and T 3, upwardly displaced RS-T segments in leads 2 and 3, Inverted T 4 (4 F).
At autopsy several months later an old posterior basal infarction was found.

The Q wave often becomes the sole deflection of the Q-R-S group.

These two sets of tracings are not always most prominent in the same precordial leads.

In posterior basal infarction, the precordial leads are usually not characteristic due to the location of the lesion. There is a tendency to a negative displacement of the RS-T segment and to a high pointed positive T wave, but these are frequently unconvincing. I have the tracings of two other cases for comparison. The first two (Fig. 4) are of the first case reported and show changes indicating the anterior apical lesion which was found at the autopsy. The others (Fig. 4) are of a posterior basal type of infarction and show typical Q 3 T 3 changes. The patient is still living and in good health today, two years after his occlusion. In this regard, it has been pointed out that the more classical the electrocardiographic picture the better the prognosis and, conversely, the more atypical the worse is the prognosis.

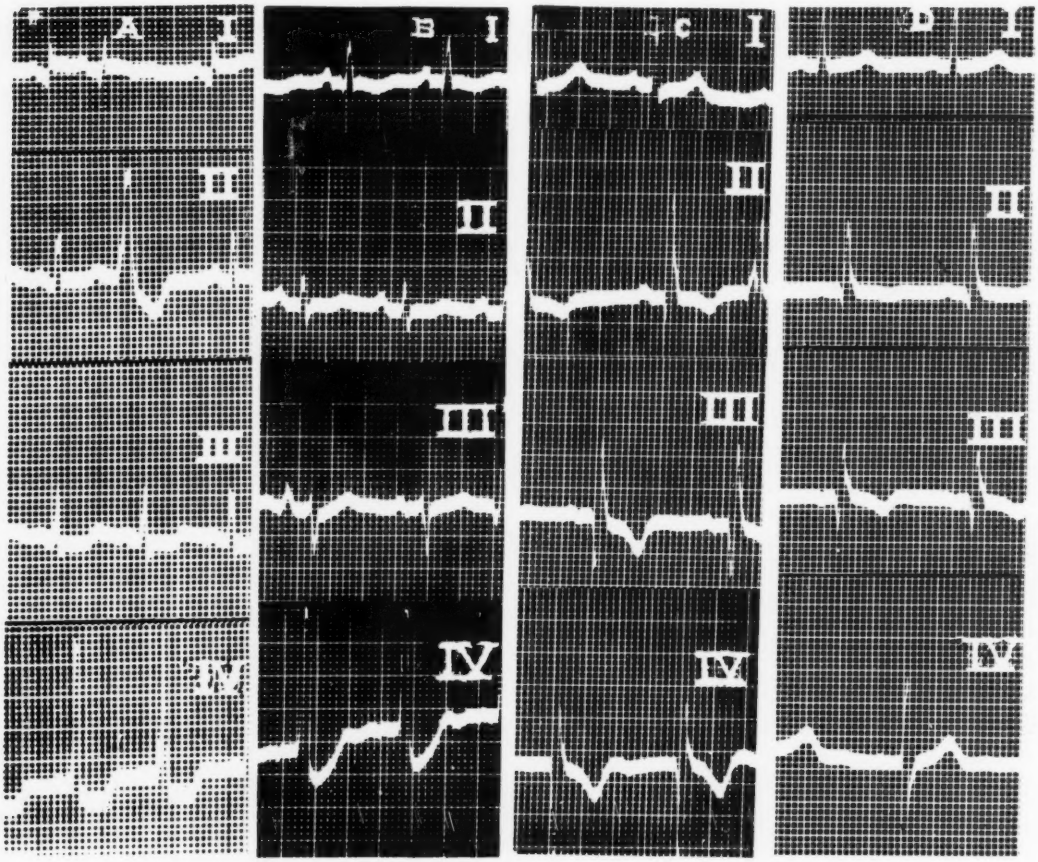


FIG. 4.

(a) CASE I. Three days after infarction. Note Q 1, elevated RS-T segment in lead 1 and indefinite T 1 and prominent S 3. T 4 is isoelectric and RS-T 4 shows beginning restitution to its original negativity.
(b) Same case 11 days later. RS-T 1 returning to normal, Inverted T 1, Deep S 3, Diphasic T 4 with increasing restitution of RS-T 4.
(c) Typical posterior basal type of infarction (Case 4) Wolferth 4th lead—1 week after occlusion.
(d) Same case two years later, with lead 4 F showing sharply pointed upright T wave.

Finally, it should be emphasized that the electrocardiogram is a laboratory procedure and that it should be so regarded in making a final diagnosis of the patient's condition; that it is unwise to make an unequivocal diagnosis of even myocardial infarction on the electrocardiogram alone; and that the tracing is best interpreted by the patient's physician or consultant, not by a laboratory.

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SURGICAL CONDITIONS CAUSED BY INTESTINAL PARASITES

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When one meets an unexpected condition in the practice of medicine he is usually interested. When the same unexpected condition is seen a second time and still a third time within a comparatively short space of time, he would be an unusual person if he failed to make some sort of investigation.

Acute appendicitis is not an uncommon or unusual surgical condition nor is intestinal obstruction rare. Abcess of the liver, while more uncommon than either appendicitis or intestinal obstruction, is seen often enough to be kept in mind by all surgeons. Intestinal parasites, as the causative factor in either of these distinctly surgical conditions, may be forgotten by the surgeon, and thereby be the cause of an unexpected condition.

With this thought in mind, it having been brought forcibly to my attention by certain recent experiences, I wish to direct your thought briefly to three intestinal parasites causing surgical conditions.

The 1933 outbreak of dysentery following the Chicago World's Fair, for a time centered our attention on amebiasis. More recently a statement by Craig that probably from six to ten per cent of the population of the United States is affected with amebiasis should cause us concern. Craig[1] bases his estimate on personal observations and the fact that sixty to seventy per cent of those infested with ameba do not give a history of dysentery of note. Fortunately, only a small percentage of the cases go on to develop liver abscess. Very interesting statistics are given by several investigators, notably the classic article by Kiefer in the Philadelphia *Medical Journal* of Feb. 21, 1903. Gessner[2] in 1932 reviewed 96 liver abscesses occurring in Charity Hospital (New Orleans) of which 56 were judged to be amebic with a mortality of 33.9 per cent. Ochsner and DeBakey[3] in 1935 based their outstanding essay on a review of 4,484 collected and personal cases, and they conclude that amebiasis with amebic abscess occurs much more frequently than generally has been supposed.

The disease as pointed out by Craig is not confined to the tropics and abscesses frequently occur without any history of previous diarrhea. Pain along the right costal border, with tenderness, fever, and unexplained enlargement of the liver is suggestive of hepatitis and abscess. Jaundice is not often a part of the picture but a rather greyish-yellow appearance is frequently noted. There is a characteristic x-ray appearance according to Miles[4] which is of value in locating the abscess and in determining its size. The complement fixation test devised by Craig[5] will be of value in a certain percentage of cases, while the aspiration of the chocolate brown pus from the liver is pathognomonic. About 89 per cent of these abscesses contain sterile pus, characteristic in its brown color. Ameba may be demonstrated in this pus which is in reality a necrotic fluid containing broken down liver tissue and blood cells. When there is a secondary infection there are likely to be staphylococci, streptococci or any of the pyogenic organisms present.

The symptoms of a typical amebic abscess or "tropical abscess" of the earlier writer, may be very definite and positive, but often are obscure. Fever and sweats are noted in about three-fourths of the patients. The fever is much like malaria but is more hectic and is not controlled by quinine. The sweats are not "night sweats" but can better be called "sleeping sweats." In chronic cases there

Read before the Second Annual Meeting of Medical District B, Gainesville, October 27, 1938.

may be no fever. There is loss of weight and strength and appetite. The whole liver usually enlarges and can be demonstrated by percussion. It may push the diaphragm upward for several inches and when the abscess is near the lower surface it may extend considerably below the costal border. There may be edema of the skin over the site of the abscess and occasionally a fluctuating mass may be felt. There is not always pain, but usually there is tenderness and pain on pressure over the right costal border. The pain may be dull and heavy but as the abscess approaches the surface it becomes sharp. Usually it radiates to the right shoulder or scapular area. If the upper surface of the liver is involved there may be a pleurisy-like pain on breathing or coughing. Pleurisy with effusion is a frequent complication. A severe cough that is worse when the patient lies down suggests involvement of the upper surface of the liver. The patient usually lies on the right side with the shoulders drawn down and the knees up in order to relax the abdominal muscles and relieve the muscle tension.

With these typical symptoms a diagnosis should be made. The treatment consists of draining the abscess cavity and the administration of emetine for a long period of time. The drainage of the cavity by closed method or trocar aspiration has shown a marked reduction in mortality over the open drainage method. In Ochsner and DeBakey's series of cases open drainage mortality 19.5 per cent was reduced to 4.1 per cent in those treated by conservative closed drainage. The generally accepted statistics show a gross mortality of 47.2 per cent for open drainage against 6.9 per cent for closed.

Acute appendicitis in children is diagnosed rather less frequently than in adults. However, when it is diagnosed clinically the differential white blood cell count is often an indicator of the type of appendix one will find on opening the abdomen. Usually one has no great difficulty in making the diagnosis of appendicitis. A history of abdominal pain, at first more or less generalized and gradually becoming localized in the right lower quadrant, accompanied by nausea, vomiting and tenderness or rigidity of the abdominal muscles and an elevation of temperature, usually indicates an acute appendicitis. When to this symptom complex there is added a negative urine analysis with a white blood cell count above ten or twelve thousand, a positive diagnosis is customary. Add to this picture a differential white count that shows an elevation of the eosinophils and one can suspect a hookworm infestation. The acuteness of the clinical symptoms as a rule does not permit delaying of operation until a stool examination can be made for parasitic ova. Hence, the diagnosis can be made positively only at operation. The appendix is most often quite red and injected and usually rather uniform in size. There has been noted a certain freedom from adhesions or plastic lymph about the appendix and as a rule from 3 to 8 hookworms will be discovered in the appendix when it is opened. Five such cases have been observed during the past several years. Postoperative treatment should always in these cases include the administration of a suitable anthelmintic.

Four cases of acute primary intestinal obstruction in less than six months should give anyone cause for concern. When all these occur in children of six years of age and less it assumes more importance, particularly from the standpoint of prevention.

Three cases of acute intestinal obstruction in children twenty to thirty months' old each, with no history of dietary indiscretion have been observed. Each case had a history of abdominal pain, colicky in character and recurring. The abdomens were soft enough to palpate but pain was complained of. Nausea and vomiting occurred in all cases with inability to pass feces or flatus as another symptom. Elevation of temperature was observed in one case and in each case a tumor mass was present in the left lower quadrant. The tumor, while suggesting and in a great degree simulating an intussuception, was larger and had a peculiar doughy feel when palpated through the abdominal wall. The clinical picture of obstruction was so complete and the degree of resulting toxemia so marked that immediate operation was resorted to. The possibility of an obstruction due to worms was considered prior to operation and in two cases definitely agreed upon. Textbooks tell of the various kind and number of worms that can and do get into a child's intestines, but until you have seen a small gut distended to three

times its normal size by a mass of a hundred and thirty ascaris lumbricoids, so tightly packed that even flatus cannot pass, you just haven't seen worms. Once the abdomen is opened and the cause of trouble demonstrated it is simply a matter of opening the intestine and removing the worms by grasping them with forceps one or more at a time. The mass can be milked from above downward to your opening just as you would push an orange into a Christmas stocking. The postoperative care of these patients is quite important, as frequently ileus develops and in small children this complication has high mortality. The administration of santonin and calomel is a standard procedure in all cases of ascaris infestation, but where an operation has been done, it should be withheld until convalesence has progressed for several weeks.

I would sound a warning against the administration of any anthelmintic followed by a drastic purgative in all cases of children suspected of having a heavy ascaris infestation. Such a procedure can result in the packing of a mass of worms so tightly that an obstruction results. In a case of incomplete obstruction due to ascaris, diagnosed by palpating of a tumor mass in the abdomen, and on the history of vomiting a 10-inch worm, satisfactory removal of the worms was accomplished by repeated high enemas and the administration of minute doses of oil of chenopodium.

CONCLUSION

1. Amebiasis is more prevalent than we used to think; it causes diarrhea in not more than 40 per cent of cases and, of these, possibly 20 per cent develop abscess of the liver that should be drained surgically, preferably by aspiration, and each case should receive emetine treatment after drainage.

2. Appendicitis in children, and adults, may be caused by hookworm infestation, and a preoperative diagnosis may be indicated by the number of eosinophils noted in the differential white blood cell count.

3. Acute intestinal obstruction can be caused by ascaris lumbricoids infestation. It can be produced spontaneously by the mass of worms and it may be produced by the administration of anthelmintics followed by purgative. Postoperative care of children is important.

4. A plea for careful treatment of patients with intestinal parasites is made to the end that we shall have fewer surgical conditions caused by intestinal parasites.

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27 West Madison St.

ABDOMINAL FOREIGN BODY

CASE REPORT

JAMES K. McSHANE, M. D.
Miami

There are several reasons for reporting this case. The foreign body removed was in the abdominal cavity for a period of either eighteen or twenty-one years. It is impossible to determine accurately the length of time as two abdominal operations were performed at three-year intervals. Another unique feature of this case, is the possibility, even probability, that multiple foreign bodies were in the abdomen. As the two surgeons who performed the previous operations have both been dead for several years and as the patient knows of her condition, it is perfectly safe to report this case without any untoward effects. The final reason for reporting this case is the hope that it will once again bring to our minds the grave responsibility we incur every time we open an abdomen and use small sponges without carriers or tapes with metal rings attached to them.

CASE REPORT

This patient was first seen on February 28, 1938, about 9 p. m. She complained of severe abdominal pain and vomiting. This pain began about six hours previously, was cramplike in character, located over the mid-abdomen and accompanied by vomiting. During a paroxysm the patient would double up from the severity of the pain. She vomited about ten times, the vomitus being watery and bile-stained but not of a fecal nature or odor. Her bowels moved the previous day, but since the onset of the attack she had had no bowel movement and had passed no gas. There had been many previous attacks of a similar nature while the patient was living in the north, but they always responded to medical treatment. There were no symptoms referable to the respiratory, cardiac, genito-urinary or nervous systems. The patient had enjoyed fairly good health, except for underweight, chronic constipation and attacks of intestinal colic.

The past medical history was naturally of extreme importance in this case and revealed that the patient had four previous operations. The first one was performed in 1917, the gall bladder, appendix and right ovary being removed. Following this operation the wound broke down and drained for four months, finally healing but resulting in the formation of a large ventral hernia. The second operation was in 1920 when the hernia was repaired. Following this second operation, the abdominal wall being solid, the attacks of abdominal pain and constipation persisted, being attributed to adhesions. These attacks, however, were never quite severe enough to demand operation. The third operation, a right mastectomy was performed in 1934 for chronic cystic mastitis. The fourth operation was performed in October 1937 when the left breast was also removed for chronic cystic mastitis. The last diagnosis has been confirmed by a report of chronic cystic mastitis from the pathologist. The past medical history was otherwise unimportant.

Physical Examination: The patient was a thin, adult female in acute pain; aged 48 years. Her pulse rate was 120; blood pressure 140-80; the skin was cold and clammy. The pupils reacted to light and accommodation; ocular movements were full and equal. The mouth was edentulous, otherwise normal as were likewise the throat and neck. The chest showed the smooth scars of bilateral mastectomy, with the skin soft and freely movable. One medium-sized gland was present in the left axilla. The lungs and heart were normal. The abdomen was tense, slightly distended, and a long scar extended from the costal margin almost to the pubis over the right rectus muscle. This was solid with no evidence of hernial protrusion. There was moderate generalized rigidity which became marked when a paroxysm of pain occurred. There was exquisite tenderness in the scar below the umbilicus in the appendiceal area. Peristalsis was quite active on auscultation, but later no peristaltic movement could be heard. No masses could be palpated and there was no evidence of femoral or inguinal hernia. Vaginal examination showed a nulliparous cervix. Due to pain, rigidity, and distention the pelvic organs could not be outlined satisfactorily. The extremities were normal and the reflexes active.

A diagnosis of acute intestinal obstruction was made and the patient was moved to the hospital. It was thought the obstruction was due to adhesions. An enema given returned with particles of fecal material from the lower bowel. A flat plate made by x-ray with the patient in the upright position showed considerable distention of the small intestines with fluid levels scattered throughout the abdomen. The roentgenologist confirmed the diagnosis of intestinal obstruction and considered the terminal ileum as the obstructed site. The blood count showed hemoglobin 94 per cent, red cells 4,600,000, white cells 18,000. Segmented nuclear leukocytes 82 per cent, juvenile leukocytes 4 per cent, and lymphocytes 12 per cent. The urine had a *sp. gr.* 1020, was amber colored with an acid reaction, negative for albumen and sugar. The microscopic study revealed 1 to 3 pus cells per high powered field, squamous epithelium, several hyaline and a few cellular casts.

Operation: This was performed the same night. Under cyclopropane anesthesia the old scar was partially excised. The great omentum was adherent to the parietal peritoneum at the point of entry, the site of the previous operations. Upon freeing it, the cecum and ascending colon were found to be moderately distended and a large portion of the terminal ileum markedly distended. There was a hard smooth mass, somewhat larger than a hen's egg, around which the loops of the terminal ileum were matted. On partial dissection this mass was found to have a very smooth, glistening capsule. In the process of dissection this capsule was nicked and cheesy caseous material exuded. At this stage it was thought to be a very large cheesy gland. Completing the dissection and breaking into the mass a sponge was discovered which had been left in at a previous operation. The intestines were freed and the obstruction liberated. They required no further attention, as they were in good condition. The raw area left at the site from which the sponge was removed was mopped with amfetin and 50 cc. of amfetin was instilled in this neighborhood just before closing the abdomen, in the hope of minimizing the formation of new adhesions. Owing to the tedious nature of the dissection and the unfavorable condition of the patient a complete exploration of the abdomen was not made.

Postoperative Course: An unusual postoperative temperature curve prevailed for the first five days. The highest temperature recorded on the first postoperative day was 99.6° F. and the temperature never went over 100° during this period. The pulse remained between 80 and 90 during this time. There was troublesome distention of a moderate degree for a few days, the bowels not moving satisfactorily until the third day. Prostigmine (therapeutic strength) seemed to have no effect at all. Vomiting occurred a few times during the first two days, but was controlled by means of the Levine tube. On the fifth day the temperature rose to 102° and the urinary bladder was found to be greatly distended, although the patient had been voiding freely and never required catheterization. 1500 cc. were removed by catheter. The urine at this time showed a heavy trace of albumen, several red cells, was loaded with pus cells and contained a large number of bacteria. Under treatment this condition subsided, the temperature reaching normal, and remaining normal three days later. The daily fluid intake was maintained between 3500-5000 cc., by means of intravenous infusion. The patient was discharged on the seventeenth day, the urine showing only 4 to 6 pus cells per high powered field. The incision healed by first intention, the appetite was good and the bowels moved regularly.

COMMENTS

This case illustrates that it is almost impossible to diagnose a foreign body in the abdomen when it does not cast a shadow in the x-ray. Many physicians treated this patient during the past twenty-one years for attacks of intestinal pain and vomiting, but the presence of a foreign body was not even considered.

The patient's husband and father-in-law, who are physicians were present at the operation in 1920 when the ventral hernia was repaired and are morally certain that the surgeon removed a sponge at this operation. However, he never admitted it to them. The history of the wound breaking down and draining for four months would tend to corroborate this. As this surgeon has been dead for several years I have been unable to confirm it.

The sponge in situ was entirely walled off and encapsulated. Despite the long period of time it showed no calcification either grossly or in the x-ray film. It also apparently showed very little tendency to ulcerate into the intestines. While it was reduced to a mushy mass with thick inspissated cheesy material, the fibres showed very little destruction. Apparently its main effect was in the formation of adhesions and in acting mechanically as a foreign body.

The patient is now enjoying fairly good health, being free from abdominal pain, but still having constipation of a moderate degree.

This case illustrates the grave danger of using small sponges that are not on a carrier or taped with a metal ring attached.

307 Ingraham Building

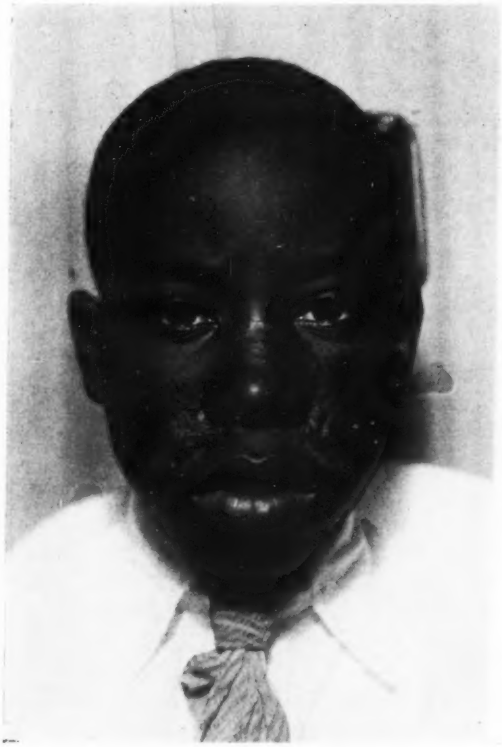
ERYTHEMATOUS LUPUS IN NEGRO YOUTHS

CASE REPORT

J. LEE KIRBY-SMITH, M.D.
Jacksonville

The two patients, both with typical clinical facial lesions of erythematous lupus, whose cases are here reported were seen at about the same time in the skin clinic of the Outpatient Department of the Duval County Hospital, in February, 1939.

CASE 2



CASE 1

CASE 1. A Negro boy, aged 12, had a facial involvement which began the first year of life. A Kahn serological test was negative. Four months' treatment with bismuth salicylate had most of the lesions involuting. At the time of this presentation, the only activity remaining is at the left outer canthus of the eye.

CASE 2. This Negro boy, aged 12, had received no treatment though facial involvement had been present for six years. A Kahn serological test was negative.

Because of the rarity of lupus erythematosus in full-blooded Negro boys, this clinical report should be interesting; particularly so because of the emphasis which has been placed on undue sun exposure producing the disfiguring disease. Other than apparently diseased tonsils, both of these North Florida-born pure Africans are in good health. As far as could be ascertained neither one has had any disabling childhood sickness.

Presented before the Medical Staff Meeting of the Duval County Hospital, Jacksonville, February 21, 1939.

1111 Greenleaf Bldg.

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SCHOOL HEALTH PROGRAM

A two-weeks' conference beginning August 14, 1939, was held in Gainesville at the University of Florida in the interest of child health as concerns the school child. The idea of this meeting originated in the State Department of Education, Tallahassee, and the Department of Education of the University of Florida. In attendance at this meeting were the representatives from most of the outstanding organizations in Florida who are interested in the maintenance of health in the school child. Dr. Luther W. Holloway of Jacksonville represented the Florida Medical Association by appointment of Dr. Leigh F. Robinson, president.

An unusual opportunity now exists for real, constructive work for the betterment of the health of the school child. For many years those interested in children have sought by various means to establish a liaison between the school authorities and organized medicine but, up to the present time, no actual progress has been made. The success of this movement depends on the full cooperation of the educational authorities, the Public Health Service and Organized Medicine. The State Medical Association stands ready to do its part in molding a program to be carried out through educational institutions and authorities, insofar as that program relates to questions of a medical nature. Medical knowledge is a requisite in formulating plans in the interest of the health of the school child. To utilize properly the reservoir of medical knowledge in Florida the educational authorities should contact the officers of our State and County Medical Societies.

In the meetings of the members of the medical profession who devote themselves to the care of children, many times disappointment has been expressed that something could not be done along this line. Florida will be one of the first states to have the opportunity to benefit in this work. The actual realization of such benefits will, of course, be slow. This is well, because a solid foundation will then be established upon which the work will progress.

NEW AND NONOFFICIAL REMEDIES

Each year a revised list of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association as of January first is published in book form under the title of "New and Nonofficial Remedies." The book contains the descriptions of acceptable proprietary substances and their preparations, proprietary mixtures if they have originality or other important qualities, important non-proprietary non-official articles, simple pharmaceutical preparations, and other articles which require retention in the book.

A list of articles and brands accepted by the Council, but not described, is included in the book to cover simple preparations or mixtures of official articles (U. S. P. or N. F.) marketed under descriptive, non-proprietary names for which only established claims are made. Diagnostic reagents which are not used in or on the human body, and protein diagnostic preparations are not included in New and Nonofficial Remedies unless the determination of the status of these products by the Council has been requested by the distributor. If such products are found to be marketed in accordance with the Council's rules, they may be included in the list of undescribed, but acceptable articles.

A supplement to the annual volume of New and Nonofficial Remedies is published twice

a year to bring up to date such current revisions and additions as have been necessary since its last publication. Every product included in the book is subject to the official rules of the Council. The comments to rules are changed occasionally by way of clarifying interpretation to insure fair consideration of all submitted preparations as new standards are recognized. Such constant and critical consideration of its contents provides the physician with a valuable reference list of acceptable new preparations on which to base his selection for use in treatment according to the established current practices of the profession.

New and Nonofficial Remedies for 1939 omits many articles which appeared in the publication for 1938. A few of these have been omitted by action of the Council because they conflict with the rules that govern the recognition of articles or because their distributors did not present convincing evidence to demonstrate their continued eligibility. Among these are: Biliposol, Serobacterins and Suppositories Salyrgan. A considerable number of others have been omitted as being off the market.

The 1939 New and Nonofficial Remedies, of course, contains the revisions which appeared in the supplements for the 1938 edition, and continues the plan of grouping together articles having similar composition or action under a general discussion. These discussions have undergone considerable revision in the 1939 edition. Further revision of statements regarding the actions, uses, dosage, composition, purity, identity, strength or physical properties of many of the articles has also been necessary in some cases. Noteworthy revisions are: Anesthetics, Local; Bismuth Compounds, Organs of Animals; Vitamins and Vitamin Preparations and Liver and Stomach Preparations.

ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY

This volume as usual contains noteworthy examples of the various kinds of reports made by the Council on Pharmacy and Chemistry: (1) preliminary reports; (2) supplemental reports on therapeutic or pharmacologic problems; (3) reports on the rejection of preparations offered for the Council's consideration.

Among the preliminary reports in this volume that on Sulfapyridine, which carries a special article by Dr. Perrin H. Long, a Council member who has been much concerned with the work on this drug, is perhaps of greatest interest. After the Food and Drug Administration had released the drug for the use of physicians early in 1939, the Council accepted various brands for inclusion in N. N. R. and in connection with the published descriptions issued another status report (J. A. M. A. **112**: 1830, May 6, 1939), based on a questionnaire sent to men who had been prominent in the experimental use of the drug. This report, no doubt, will appear in the next volume of reprinted Council reports. Other preliminary reports are the following: Allantoin, a preparation of glyoxyldiureid purposed to supersede the use of surgical maggots; and Sulfapyridine, published shortly before the Council acceptance of this new chemotherapeutic drug.

Among the supplemental (or status) reports are those on Colloidal Sulfur in the Treatment of Chronic Arthritis, showing that much confirmatory evidence is needed to establish the value of this therapy; on Ergonovine, a careful study of the relation of this newly discovered principle to ergot therapy in general; and on Picrotoxin in Poisoning by the Barbiturates, showing the promise and the present limitations of this antidotal therapy.

Among the reports of rejection the following are noteworthy: Collodaurum, a "colloidal gold" preparation, promoted with unwarranted, exaggerated and misleading claims for its use in the treatment of cancer; Dermo-G, stated to be a mixture of Spermaceti, White Wax, Oil of Sweet Almonds, Sodium Borate, Precipitated Sulphur and Water, an unscientific and superfluous mixture marketed under a therapeutically suggestive name with exaggerated, unwarranted claims; Fru-T-Lax, a needlessly complex and unscientific mixture advertised to the public under a misleading and inadequately descriptive name with claims which are unwarranted; and Hyposols Sulisocol, claimed to be "Sulphur Colloid" in 2 cc. of "Autoisotonized Solution," exploited for use in arthritis with inadequate evidence of its therapeutic value.

SWIMMING EXPOSES MAN TO RISKS OF UNNATURAL ENVIRONMENT

Man's fundamental lack of adaptation to an aquatic environment is just as important a factor as bacterial contamination in causing infections among swimmers, H. Marshall Taylor, M. D., Jacksonville, Fla., asserts in *The Journal of the American Medical Association* for Sept. 2. He points out:

Man is essentially a terrestrial animal. When out of his normal sphere, unless he takes cognizance of the limitations nature has placed on him and heeds the fundamental laws that regulate his being, he subjects himself to the likelihood of contracting the infections that frequently beset the swimmer.

Dr. Taylor's studies lead him to conclude that swimmers contract infections of the ear or sinuses even in pools in which the water is relatively pure. Animals whose natural habitat is water are able to withstand higher concentrations of bacteria because they are anatomically and physiologically adapted to do so. He explains:

In every species whose normal habitat is water, some provision for excluding water from contact with the respiratory mucous membrane is found. The most consistent modification of aquatic mammals for life in the water is the ability to close the external nostrils. This is not the case in man.

Man nevertheless has one natural means of protecting the mucous membrane of the nasal passages when swimming. That protection is the proper method of breathing. By exhaling through the nose while the head is submerged and inhaling through the mouth while the head is above water, the swimmer tends to maintain a positive air pressure in the nasal cavities and thereby protects the sinuses and the canal between the ear drum and the pharynx from water.

In the new strokes that require partial or complete submersion of the face and head, this method of breathing is highly important. The swimmer should take a deep inhalation through the mouth just before diving and then exhale slowly through the nose while under the water.

The rush of water into the nasal cavities incident to diving feet foremost may readily cause acute infections of the sinuses, the middle ear and the mastoid in swimmers of all ages.

Another consistent modification that all aquatic animals have for life in the water is the ability to close the ear in order to prevent water from coming in contact with the ear drum. The lack of this provision in man adds another piece of evidence to the fact that he is a terrestrial animal.

In man there is a conspicuous lack of a compensating mechanism for the maintenance of a normal temperature in any medium colder than his normal surroundings. Man's loss of body heat during submersion for a period of twenty minutes at a temperature of 70 F. may be five times the normal rate. Water takes away heat from the body twenty-seven times faster than air.

Summarizing an experiment which he made on lowered resistance from chilling in relation to infections of the ear and sinuses following swimming, Dr. Taylor says:

The temperatures of 250 children under 13 years of age were recorded both before and after they had been swimming for forty-five minutes in an indoor pool with the temperature of the water at 73 F. In only thirty, or 12 per cent, was a normal temperature maintained, and in all the remaining 220 there was a reduction of temperature; in some the temperature fell as low as 95 F.

The child or adult, particularly when frequenting the indoor swimming pool where the body is not exposed to the warm rays of the sun, should be constantly active instead of following the common practice of sitting around on a cold tile floor in a cold wet bathing suit. This popular custom is as conducive to catching cold as wrapping oneself in a wet blanket and sitting on the concrete floor of a basement would be. The bather who is inactive on a windy beach, where there is a rapid loss of body heat from evaporation, invites the same risk.

MEDICAL LICENSES GRANTED

Dr. W. M. Rowlett, Secretary of the State Board of Medical Examiners, announces that 143 applicants were successful in passing the State Board examination held June 19-20. There were 24 failures. Several nationally known physicians were among those licensed, one of the best known being Dr. Temple S. Fay of Philadelphia. The names and addresses of those who passed the examination and were licensed are as follows:

Able, LeGrand Guerry	Greenville, S. C.
Albert, Irwin Charles	Cincinnati, O.
Andrews, Edson James	Manitowoc, Wis.
Atkinson, Samuel Carter	Waverly, Ga.
Baeseman, Reuben Winfield	Asbury Park, N. J.
Belle, Martin Samuel	Atlanta, Ga.
Bippus, William Edward	Monticello
Blackman, Raymond Scrivener	Jacksonville
Blalock, Tully Talbot	Jacksonville
Blessing, Robert	Evanston, Ill.
Bloomfield, Sylvan	Brooklyn, N. Y.
Blum, Leo J., Jr.	Macon, Ga.
Brenner, Edward Christopher	Ft. Lauderdale
Buerk, Martin Edward	Orlando
Butcher, John Mack	Washington, D. C.
Butler, Fred Arthur	Havana
Butt, Arthur Jordan, Jr.	Pensacola
Byrd, Edwin Samuel	Atlanta, Ga.
Chapman, Jules Benjamin	Jacksonville
Cleveland, Robert Henry	Jacksonville
Cline, Wade Martin	Lakeland
Cohen, Rebecca	St. Petersburg
Cole, Herschel George	Hammond, Ind.
Cone, Adolph	Jacksonville Beach
Costantino, Eugene Francis	Tampa
Corum, Lewis Townsley	Corbin, Ky.
Cueto, Andrew Alexander	Cincinnati, O.
Daffin, Charles Hall	Jacksonville
Davey, Walter Fletcher	Philadelphia, Pa.
Davis, Edwin Brown, Jr.	Byromville, Ga.
Dieterich, Frederick Henry	Miami Beach
Dobbins, Burns Alan, Jr.	Jacksonville
Dunham, Kenneth	St. Augustine
Eberhart, Charles Abel	Atlanta, Ga.
Economou, James George	Lowell, Mass.
Elliott, Cecil Benjamin	Gainesville, Ga.
Farber, Herman	Richmond, Va.

Farrer, Frederick Eugene ..... St. Petersburg
Fay, Temple Sedgwick ..... Philadelphia, Pa.
Finkle, Philip ..... New York, N. Y.
Flowers, Paul Rutledge ..... Dothan, Ala.
Foster, L. Paul ..... Orlando
Friedbacher, Karl ..... West Allis, Wis.
Gachet, Fred Smith ..... Rochester, N. Y.
Gessler, Ivan Ward ..... Winter Haven
Gifford, John Pearl ..... Jacksonville
Gleason, Albert Harvey ..... Seaside Park, N. J.
Goehring, Harrison Dilwyn ..... Cleveland, O.
Gray, Ellis Barksdale ..... Spartanburg, S. C.
Griffin, Charles Gregory ..... Nashville, Tenn.
Gross, Alfred ..... Miami Beach
Hagan, Vernon LeRoy ..... Sylacauga, Ala.
Harmon, James Patton ..... Tampa
Harris, Major Haymond ..... Newport, Ark.
Harrison, Everett Manship ..... Dunedin
Harrison, Winston Franklin ..... Montreal, Can.
Hathcock, William Caldwell ..... Lakeland
Hausman, Harry ..... New York, N. Y.
Hayes, Candler Kilgo ..... Chattahoochee
Hembree, Joseph Marion ..... West Palm Beach
Hewson, Frank McCarty, Jr. ..... Chattahoochee
Hoffman, Charles Anthony ..... Huntington, W. Va.
Hoover, William Mitchell, Jr. ..... Coral Gables
Horn, Phillip Webster ..... Pensacola
Hutchinson, Robert Herrick ..... Gainesville
Ireneus, Carl, Jr. ..... Chicago, Ill.
Jones, Stewart Ralph ..... Lexington, Ky.
Klotz, Solomon David ..... Coral Gables
Kundert, Palmer Rudolph ..... Madison, Wis.
Larsen, Charles, Jr. ..... Lakeland
Leser, Janet Graham ..... Arlington
Lesser, Leonard Irving ..... Rome, Ga.
Lister, George ..... Elkins Park, Pa.
Luria, Sydney ..... Miami Beach
Lyons, James Francis ..... Miami
McGough, James Wylie ..... Cleveland, O.
McKinnon, Daniel Angus, Jr. ..... Marianna
Maiden, Sara Howarth ..... DeLand
Martin, Felix Breaux ..... Nashville, Tenn.
Mauldin, John Tyler ..... Atlanta, Ga.
Meadow, Edward ..... Miami
Meyer, Francis Poynter, Jr. ..... St. Petersburg
Meyers, Max Irving ..... Columbia, Pa.
Mickley, John Hoke ..... Tabor City, N. C.
Miller, Edward Simpson ..... Jacksonville
Mills, Richard Ambrose ..... Hollywood
Mims, James Lloyd ..... Marion, S. C.
Mitchell, George Alfred ..... St. Louis, Mo.
Monroe, Lance Truman ..... Mountain View, Ark.
Moore, John Phillips ..... Ocala
Murray, Nelson Arnold ..... Jacksonville
Needles, Robert Johnson ..... Atlantic, Iowa
Noel, William Walker ..... Detroit, Mich.
Norris, Hardgrove Spofford ..... St. Augustine
Parish, Frank Matthews ..... DeLand
Parr, Luther Hermann ..... Miami
Patterson, Vivian Pierce ..... Ft. Meade
Pernoud, Flavius Gentry, Jr. ..... St. Louis, Mo.
Pinson, Harry Dupree ..... Ochlochnee, Ga.
Provinsky, Leo Bernard ..... Jacksonville
Purcell, Thomas Riffel ..... Umatilla
Quattlebaum, Frank Walter ..... Pavo, Ga.
Rawlins, Albert George ..... Jacksonville
Rich, Maurice ..... Atlanta, Ga.
Saltz, Nathan Jacob ..... Jacksonville
Sawyer, James Latimer ..... Folkston, Ga.
Schlesinger, William Lee ..... Cleveland, O.
Schwarz, Milton Jandon ..... Miami Beach
Shalloway, Charles Leon ..... Atlanta, Ga.
Simmons, Stanley Tenant ..... Louisville, Ky.
Smith, Harry Bryant ..... Marianna
Smoak, Philip Laurens ..... Tampa
Smoot, Richard Henry ..... Decatur, Ga.
Stankus, Donald George ..... DeKalb, Ill.
Stetcher, Joseph Lewis ..... Montverde
Stern, Henry Maximilian ..... DeLand
Stillman, Sidney ..... Jacksonville
Stoddard, Guy Russell ..... Coral Gables
Stoeckinger, Joseph Aloysius ..... Lexington, Ky.
Stull, Henry Tuttle ..... Philadelphia, Pa.
Sullivan, Benjamin Herbert ..... Tampa
Tench, William Ryan ..... Clearwater
Thomas, Henry Randall ..... Montgomery, Ala.
Thompson, Charles Baker ..... New York, N. Y.
Travis, Richard Churchill ..... Indianapolis, Ind.
Trice, William Waller, Jr. ..... Tampa
Trippe, Clarence Morton ..... Asbury Park, N. J.
Turner, Fred Arthur, Jr. ..... Orlando
Uihlein, Alfred, Jr. ..... Rochester, Minn.
Wachtel, Leo Michael, Jr. ..... Jacksonville
Walden, Kennon Christian ..... Waycross, Ga.
Webb, Roderick Cameron ..... Jackson, Tenn.
Weinstein, Philip ..... Philadelphia, Pa.
West, John Richard ..... Elmira, N. Y.
Wheeler, Nicholas Aaron, Jr. ..... Emory University, Ga.
White, Henry Clay ..... Pensacola
Wilkins, William Beverley ..... Alexandria, Va.
Wilson, Reaves A. ..... Sarasota
Wilson, Walter Emory, Jr. ..... Atlanta, Ga.
Yoakam, Wayne Addison ..... Detroit, Mich.
York, Dillard Bennett, Jr. ..... Tampa
Young, Henry Durham, Jr. ..... Bushnell
Zieve, Sanford Laurence ..... Cleveland, O.

BIRTHS

Dr. and Mrs. Carlos P. Lamar of Miami announce the birth of a daughter on August 21 at the Jackson Memorial Hospital.

* * *

Dr. and Mrs. Earl H. Roberts of Jacksonville Beach announce the birth of a son, Eugene Jefferson, on August 12 at St. Vincent's Hospital.

STATE NEWS ITEMS

At the June meeting of the State Board of Medical Examiners the following officers were elected: President, Dr. S. G. Hollingsworth, Bradenton; Vice-President, Dr. B. A. Chapman, Jacksonville; Secretary-Treasurer, Dr. W. M. Rowlett, Tampa. The other board members are: Dr. H. D. Van Schaick, Jacksonville; Dr. J. C. Davis, Quincy; Dr. J. E. Crump, Winter Haven; Dr. H. A. Day, Orlando; Dr. Thomas W. Hutson, Miami; Dr. C. E. Tumlin, Miami; and Dr. Carl A. Williams, St. Petersburg.

* * *

Dr. M. B. Marks of Miami Beach has returned from Harvard University and the Massachusetts General Hospital where he took an intensive course in allergy with Dr. Francis Rackemann.

* * *

Dr. George M. Green of Daytona Beach moved recently into his new modernistic building on the north side of Broadway near the river. Reports indicate that this new medical center is complete and up-to-date.

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Dr. T. F. Hahn and Dr. J. E. Taylor of DeLand were appointed recently on Volusia County's permanent sanity committee, by County Judge J. E. Peacock, in accordance with a new act of the legislature. There is one layman on the committee.

* * *

Dr. L. L. Whiddon of Ft. Pierce took postgraduate work in obstetrics at Johns Hopkins University in July.

* * *

Drs. W. M. Rowlett and H. Mason Smith of Tampa left the middle of August for a five weeks' vacation in Alaska. Mrs. Smith, Mrs. Rowlett and H. Mason Smith, Jr., accompanied them on the trip.

* * *

Dr. Lloyd J. Netto and family of West Palm Beach spent some time in the North the latter part of August, Doctor Netto visiting a number of clinics. Miss Betsy Netto was recently selected Lady of the Bracelet at Camp Nakawana, Mayland, Tenn.

* * *

Dr. and Mrs. Ralph Gowdy, their son, Robert, and daughter, Margaret, of Miami Beach have returned from the mountains of North Carolina. They visited Davidson College near Charlotte where Robert will attend school this year.

* * *

Dr. G. Thomsen-von Colditz of Cocoa has returned from a 5,000-mile motor trip, during which he visited Asheville, New York City, Boston, Niagara Falls, Chicago and Atlanta.

* * *

Dr. F. Gordon King of Jacksonville recently announced the limitation of his practice to the field of anesthesiology.

* * *

Dr. Paul K. Jenkins and family have returned from a two months' vacation which began with the Golden Gate Exposition in San Francisco and ended with the New York World's Fair. They stopped at many places of interest in Colorado and in the Black Hills of South Dakota.

FOR SALE—Fluoroscope with orthodiascope attached, in excellent condition. Anyone interested may secure price and further information by communicating with Dr. E. Sterling Nichol, 306 Huntington Building, Miami, Florida.

WILBUR ASHLEY McPHAUL

Dr. Wilbur A. McPhaul of Jacksonville, State Health Officer, died August 1, following an illness of several months.

A native of Robeson County, North Carolina, Doctor McPhaul attended the University of the South at Sewanee, Tenn., and was a graduate of the University of Nashville, now a part of the University of Tenn., where he received his medical degree in 1905. He took postgraduate work in tropical medicine at Tulane University.

Doctor McPhaul was well known in public health circles throughout the South, having held positions not only in his native State and Florida, but also in Alabama. The first county health unit law in the United States was passed in 1911 through the efforts of Doctor McPhaul while he was serving as a member of the House of Representatives of the North Carolina Legislature. He maintained his interest in full-time county health units and fourteen of Florida's sixteen county units were established during his regime as State Health Officer.

Doctor McPhaul was appointed State Health Officer in 1936 by Governor Sholtz, and was reappointed to this position by Governor Cone.

Surviving are his widow, Clara Grantham McPhaul, a daughter, three sons, and two grandchildren.

The Duval County Medical Society, of which Doctor McPhaul was a member, recently passed the following resolutions:

WHEREAS, Dr. Wilbur A. McPhaul, health officer of the State of Florida, died at Jacksonville on August 1, 1939, and

WHEREAS, Doctor McPhaul was esteemed by all who knew him and particularly by his associates of the medical society of Duval County and by public health officials throughout the South, and

WHEREAS, Doctor McPhaul distinguished himself because of his untiring efforts to improve medical facilities for the public, especially the underprivileged, in furtherance of which he authored and was responsible for enacting the first local health unit law in the United States, and

WHEREAS, Doctor McPhaul's inspiration, leadership and willingness to cooperate did much to cement the spirit of friendliness between private physicians and public health officials, and

WHEREAS, Doctor McPhaul devoted his entire career to the welfare of humanity and created an enviable record of achievement for the benefit of the citizens of the State of Florida, therefore

BE IT RESOLVED that the Duval County Medical Society hereby expresses its sincere regret over the irreparable loss to the State Board of Health, and

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BE IT FURTHER RESOLVED that this resolution be placed upon the minutes of the Duval County Medical Society and that copies thereof be sent to Mrs. Clara Grantham McPhaul, his widow, and other members of his family, and to the staff of the State Board of Health who served under him, and to the Florida Public Health Association with which he worked so closely.

JOHN THOMAS DENTON

Dr. John T. Denton, a practicing physician in Sanford for more than three decades, died in a Greenville, S. C., hospital, August 3. Doctor Denton became suddenly ill at Saluda, N. C., on July 29 while attending the Southern Pediatric Seminar.

Doctor Denton was born in Mississippi on February 23, 1879, and has practiced medicine in Sanford since 1905, after his graduation from the University of the South at Memphis, Tenn. During the past few years he specialized in pediatrics and for several years attended regularly the clinics held at Saluda.

Active in medical circles, Doctor Denton was a past president of the Seminole County Medical Society, a member of the Florida Medical Association and the American Medical Association. During the World War he served as chief examiner for the draft board in Seminole County. He was also a Mason and an active member of the First Baptist Church, serving as deacon emeritus for the church at the time of his death.

Doctor Denton is survived by his widow and one son, Robert H. Denton of Winter Haven.

GASTON DAY

Dr. Gaston Day of Jacksonville died suddenly at his home on August 5.

A native of Montgomery, Ala., where he was born in 1882, the son of Henry E. and Ellen L. Day, he attended the University of Florida and obtained his medical degree from Johns Hopkins University. Doctor Day came to Jacksonville, upon the completion of his medical training, to practice his profession. He served as a major in the Medical Corps during the World War.

Doctor Day is survived by his widow, Juanita Lord Day of Jacksonville.

The following commemoratory resolutions were recently passed by the Duval County Medical Society, of which Doctor Day was a member:

Late in the evening of the fifth of August, 1939, the entire membership of the Duval County Medical Society suffered the great loss of one of its most valued friends, members, and gracious co-workers in the advancement and practice of Medicine and Surgery.

The absence of Doctor Gaston Day from our midst causes a keen loss of wise counsel and expert assistance to all of us who have benefited by his abundant cooperation for the benefit of mankind, to which he contributed to the limit of his splendid abilities.

Doctor Gaston Day came to this State when he was but a child, attended the local schools, and received the Bachelor of Science degree from the University of Florida in 1906, and his Florida State Certificate in 1908.

THEREFORE BE IT RESOLVED, as evidenced by the silent standing of the members of the Duval County Medical Society in the meeting of August eighth, 1939, that the members of this Society express their great respect for the beautiful character and fine achievements of Doctor Gaston Day, and

BE IT FURTHER RESOLVED that this resolution be placed upon the minutes of the Duval County Medical Society, and that copy thereof be sent to Mrs. Juanita Day, his widow, together with our deepest sympathies.

COMPONENT COUNTY SOCIETIES

BREVARD COUNTY MEDICAL SOCIETY

The regular meeting of the Brevard County Medical Society was held in the office of Dr. I. M. Hay at Melbourne on August 9. Dr. L. J. Hanchett of Jacksonville, acting director of the Division of Venereal Disease Control of the State Board of Health, showed a motion picture on syphilis and gave a short talk in connection with the film, as a feature of the scientific program.

* * *

PINELLAS COUNTY MEDICAL SOCIETY

Dr. Neil E. Funk was principal speaker at the regular meeting of the Pinellas County Medical Society held August 4 at the Chatterbox. His subject was "Rambling Among the Hospitals."

At the Academy meeting of the Society held on the evening of August 18 at the Power and Light Building, St. Petersburg, Dr. H. M. Rogers presented "Acute Coronary Occlusion," and Dr. C. S. Franckle discussed "Gastric Ulcer."

MEDICAL DISTRICT MEETINGS

Lakeland (D)	Sept. 28
West Palm Beach (F)	Oct. 12
Ocala (B)	Oct. 26
Sanford (E)	Nov. 9

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ABSTRACT DEPARTMENT

Members of the Florida Medical Association who have had articles published in out-of-state medical journals are requested to forward such journals or reprints to Box 1018, Jacksonville, for abstracting in this department.

Air Transport Flying from the Medical Standpoint, Medical Dept. Eastern Air Lines, Inc., by GREENE, RALPH, Coral Gables, *J. Aviation Med.* 10: 12-30 (Mar.), 1939.

Greene, in a detailed and extremely interesting paper, outlines the exhaustive minutiae incident to the proper operation of an Air Line Medical Department.

The subject is thoroughly covered from the initial examination of the pilot, requiring an entire day and including physical and special sense examinations, along with personality and psychological tests, on down to the question of investment of his savings and his ability to get along with his wife.

Those interested in the subject of aviation medicine will derive a great deal of pleasure from a perusal of the original article.

The Employment of Multiply Infected Anopheles Quadrimaculatus to Effect Inoculation with Plasmodium Vivax and P. Falciparum, BOYD, MARK F.; KITCHEN, S. F.; and KUPPER, W. H., Tallahassee, *Am. J. Trop. Med.* 17: 849-853 (Nov.), 1937.

The authors applied A. quadrimaculatus successively to patients harboring P. vivax and P. falciparum in such a way that one group would mature vivax first, another falciparum first and the third would mature both simultaneously.

These lots were in turn applied to patients in such a way that, taking into consideration the maturation cycle of the particular plasmodium, facts could be obtained as to their individual infectivity. On the whole the results were in agreement with the authors' expectations and they conclude:

(a) The sporogonous cycles of both are completed within the periods to be expected from the temperature of incubation.

(b) A head start by either species does not adversely affect the other.

(c) Mosquitoes multiply-infected with two species of malaria parasites under a variety of conditions can successfully transmit both.

(d) Transmission of a single parasite by multiply-infected mosquitoes is attributable either to the earlier maturation of the cysts of one species, or to the earlier exhaustion or normal degeneration of the sporozoites of one species.

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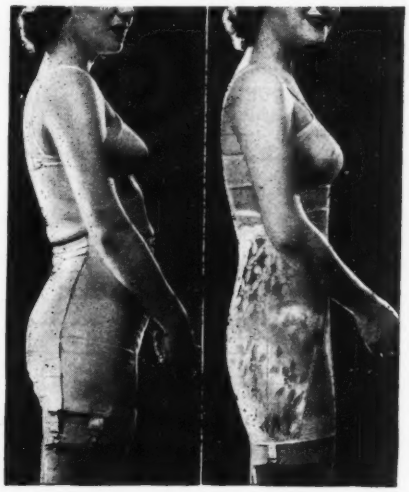

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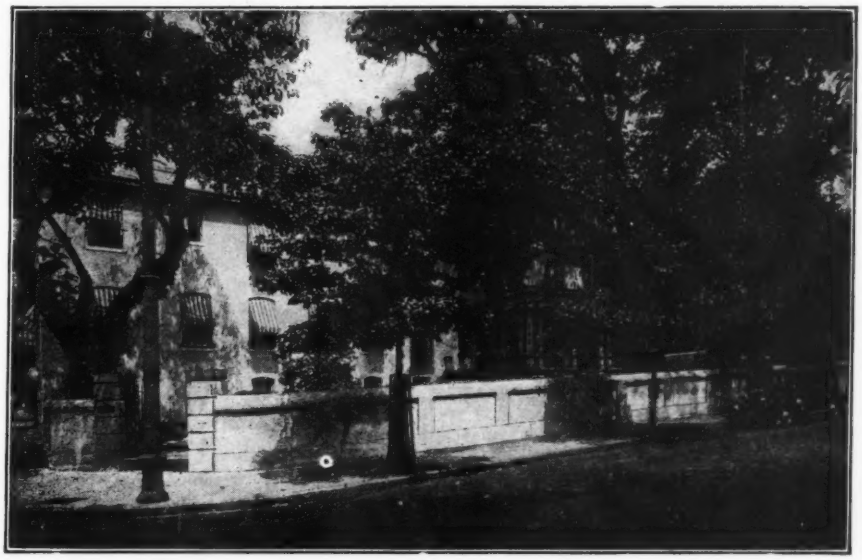

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BOOKS RECEIVED

Acknowledgment of books received will be made in this column and this will be deemed by us a full compensation to those sending them. A selection will be made for review, as expedient.

CANCER HANDBOOK. Edited by ERIC LILJENCRANTZ, M. D., Chief of Tumor Clinic, Stanford University School of Medicine; consultant in Neoplastic Disease, U. S. Naval Hospital, Mare Island, and U. S. Marine Hospital, San Francisco. The methods advocated by this book are based on present practice at the Stanford University Tumor Clinics. The volume is designed "especially for a brief graduate course, elementary enough for any medical practitioner, yet complete enough to prepare the practitioner for adequate handling of patients as to cancer, through the stages of suspicion, diagnosis, consultation and treatment. It is well fitted to serve as a desk summary." Cloth. Price, $3.00. Pp. 114, with 50 illustrations. California: Stanford University Press.

THE ROCKEFELLER FOUNDATION: ANNUAL REPORT 1938. By THE ROCKEFELLER FOUNDATION, RAYMOND B. FOSDICK, president. A general review of the work of the Foundation for the period January 1, 1938, to December 31, 1938, with detailed reports of the Secretary and the Treasurer, the Director of the International Health Division, the Directors of the Medical Sciences, the Natural Sciences, the Social Sciences, and the Humanities, and the Vice-President in charge of the program in China. Paper, Pp. 515, with 27 illustrations. New York: The Rockefeller Foundation.

THE SERODIAGNOSIS OF SYPHILIS: SUPPLEMENT NO. 9 TO VENEREAL DISEASE INFORMATION. By UNITED STATES PUBLIC HEALTH SERVICE. In two parts: Part I contains the proceedings of the Assembly of Laboratory Directors and Serologists held under the auspices of the Committee on Evaluation of Serodiagnostic Tests for Syphilis and the United States Public Health Service, October 21-22, 1938, at Hot Springs National Park, Arkansas. Part 2 gives the revised technics of the Eagle, Hinton, Kahn, Kline, and Kolmer tests. Paper, Pp. 224; illustrated. For sale by the Superintendent of Documents, Washington, D. C. Price 30c. United States Government Printing Office.

CONTROL OF THE VENEREAL DISEASES IN THE UNITED STATES: PRESENT AND FUTURE PLANS. SUPPLEMENT NO. 10 TO VENEREAL DISEASE INFORMATION. By UNITED STATES PUBLIC HEALTH SERVICE. Contains foreword by Thomas Parran, M.D., Surgeon General, U. S. P. H. S., and chapters on "Regulations Governing Allotments and Payments to the States for Venereal Disease Control Activities for the Fiscal Year 1940" and "Recommendations for a Venereal Disease Control Program in State and Local Health Departments." Paper, Pp. 25. For sale by the Superintendent of Documents, Washington, D. S. Price 10c. U. S. Government Printing Office.

NEW AND NON-OFFICIAL REMEDIES, 1939, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1939. Cloth. Price, postpaid, $1.50. Pp. 617. Chicago: American Medical Asical Association, 1939.

ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1938. Cloth. Price, $1.00. Pp. 120. Chicago: American Medical Association, 1939.

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